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ABSTRACT

This monograph reviews educational programs designed to prepare physicians to practice primary care, with particular attention to historical influences that underlie the development of these programs and recommends specific action to improve the quality of that preparation. Emphasis is placed on the problems of primary care, history of education for primary care, undergraduate programs, graduate education programs, and the elements of a successful program. (MJM)

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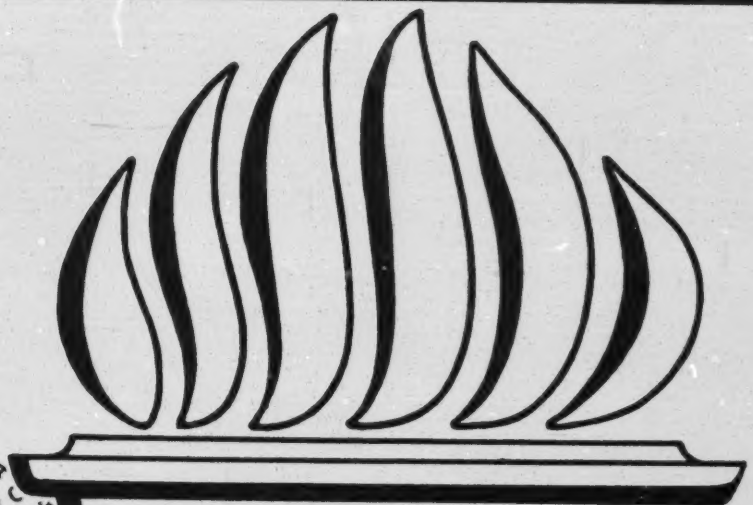

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Acknowledgement

Education for primary care has been a major concern for both of us. Although formally trained as pediatricians, it became apparent early in our careers that care for our young patients involved their families and that most of these patient care needs occurred outside of the hospital. These views now seem so obvious that many of our readers will perhaps find our statement naive. Yet, the number of colleagues who have shared this view with us in the past have been very few, and concern for primary care in the medical school and teaching hospital can at times be a very lonely undertaking.

Robert Haggerty stimulated us early and provided invaluable guidance and counsel. It was his suggestion that we take advantage of the opportunity afforded by our coincidental study leave in Great Britian to write this monograph. We have also benefited from the critical comments of Professor Margot Jefferys, whose Social Medicine Unit at Bedford College, University of London, was our academic home during this year.

We are especially indebted to the University of Rochester, the John and Mary R. Markle Foundation, the Harvard Medical School, Boston University School of Medicine and the Bureau of Health Services Research, formerly the National Center for Health Services Research and Development, for providing us with the time and necessary financial support for our sabbatical year. Specific support for writing this monograph was provided by the National Center for Health Services Research and Development (Purchase Order #123692) and the Bureau of Health Manpower Education (Contract #NIH-72-4030), U.S. Department of Health, Education, and Welfare. Mrs. Jean Carmody of the National Center was especially helpful to us.

We hope that this monograph will prove timely and assist those who share our interest in education for primary care.

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Introduction

This monograph has two main purposes. The first is to review critically those educational programs designed to prepare physicians to practice primary care, with particular attention to the historical influences that underlie the development of these programs. The second is to recommend specific action to improve the quality of that preparation.

Our central thesis is that there are two interrelated and serious problems in our present educational structure—not enough physicians enter primary care practice and those who do are not adequately prepared for the job. These dual defects are a result of factors both within and outside of the medical education process, and an understanding of their nature and historical development must logically precede any recommendations for change.

At the outset, we need to define the term "primary care" in order to have clearly in mind that aspect of medical practice to be analyzed. Following this, we outline some problems in primary care practice that affect education. Finally, we note several problems within the educational system itself that compromise the effective teaching of primary care. In subsequent sections of the monograph, we discuss the history of primary care education and describe in some detail primary care programs at the medical school, residency, and continuing education levels. In the final section, we set forth a number of factors that should be considered in the planning of a primary care education program and make specific recommendations for their implementation.

I. What Is Primary Medicine?

The terms "primary medicine" and "primary care" have gained wide acceptance in the past decade, particularly in the United States. Like most new terms, their meaning has evolved and been reshaped with each succeeding author's use. It is important to begin with a definition of primary medicine, at least, to distinguish the term from its occasional fellow-travellers: comprehensive medicine, social medicine, preventive medicine, community medicine, personal medicine, ambulatory medicine, and family medicine. These terms overlap not only with primary medicine, but also with each other, reflecting areas of common interest as well as a certain vagueness of definition. The fact that academic medical departments often have one or several of these as titles has legitimized their use, but not always clarified their meaning. Before departments and learned societies adopt completely the newer term "primary care", a definition is in order.

To begin, there seems to be wide agreement that primary medicine is within the personal health system rather than the public health system and, therefore, is focused on the health needs of individuals and families (White, 1967; Hansen, 1970). These individuals live in communities and may share certain common characteristics with others in their vicinity, but one starts with the individual or family as the reference point and then expands or elaborates. We do not start with a community as "patient." Parenthetically, it should be acknowledged that a public health system frequently encompasses the responsibility for assuring that a personal health system exists and thrives. As a contrasting example, Deustschle and Eberson (1968) define community medicine as "a discipline . . . for studying and solving in-depth community health problems. This includes an organized community effort in environmental health related specifically to fundamental causes and social consequences of all the more prevalent diseases . . . the diagnosis and therapy of community and social pathology, not individual pathology, must be our major concern."

In a similar vein, social medicine is defined by McKeown and Lowe (1966) as comprising two parts, which are epidemiology and the study of the medical needs of society. It is not seen as a clinical or laboratory discipline. According to these latter authors, social medicine and community medicine are, first of all, scholarly rather than consulting disciplines; and, secondly, they are focused on the community or large group as the unit of care rather than on the individual or family.

The term "comprehensive medicine" should be distinguished from primary medicine; because for no other reason, many programs reviewed in this monograph are titled as such or have an implied definition of the term underlying their organization. The problem with comprehensive medicine is its all inclusiveness. To quote Lee (1961), comprehensive medicine is "an attempt to apply all available knowledge – be it pathology, psychology, or sociology–to the maintenance of health and the diagnosis, therapy, and rehabilitation of the sick or disabled patient." In Weinerman's terms, comprehensive medicine is " . . . the organized provision of health services to family groups, including a full spectrum of service from prevention through rehabilitation, continuity of care for the individual, emphasis upon the social and personal aspects of disease and its management, use of the health team concept with personal physician responsibility and coordination of the diverse elements of modern scientific practice" (Snoke, 1965). Sanazaro and Bates (1968), in an exhaustive review of teaching programs labelled "comprehensive medicine", used a critical incident study to attempt further definition of the term and still had difficulty to in separating it from "good medicine." Indeed by the

definition listed, it refers to an ideal of breadth and depth that is consonant with all good medical care.

We suggest that the term "comprehensive medicine" be retired now, after two decades of yeoman service, for two reasons. It is insufficiently restrictive to define a subcategory of medicine; and it is divisive, albeit unconsciously. To assume that comprehensive medicine is the sole prerogative of the primary physician is to insult the good consultant by assuming that he ignores a breadth of factors in his practice. Moreover, it lets the less competent one off the hook and permits him to pursue his tunnel vision to the last hydroxyl bond without a sideways glance.

There are three main anchoring points to our definition of primary medicine. We shall base this definition on the contributions of White (1967), Hansen (1970), Magraw (1971), Pellegrino (1968), the Millis Commission (1966), and the American Academy of Family Practice (1969).

1. *Primary medicine is first-contact medicine.* In its "first-contact" function, however, primary medicine is separable from secondary and tertiary medicine, which are based on referral rather than initial contact (Hansen, 1970). As suggested by White (1967), primary medicine is the "care the patient receives when he first approaches the health-service system or formally participates in the process of medical care." We would give this aspect a more active connotation. There is increasing awareness that the decision to seek out and continue with medical care is not a straightforward process and is influenced by a host of individual and social factors. Persons in greatest need may not seek care appropriately or follow advice adequately. Primary medicine is very much concerned with such factors, which act at the interface between the patient and the provider. It is oriented to outreach and followup as well as to helping the patient define the conditions under which entry to professional services and continuation in care are appropriate. In this sense, primary medicine is included in that portion of preventive medicine that can be practiced at the family level and that works through the patient-primary provider relationship. Here the overlap with community medicine is obvious. For example, if there is need for a group of patients to know about sickle cell anemia, to be screened for the presence of sickle trait, and to be counselled accordingly, shall this be the responsibility of the primary care practices within the community or shall it be done through public health auspices? Shall such a program involve schools, churches, and the public media? Ideally, both public and personal health groups—as well as the community—ought to be concerned; and the initiative may come from any one group. The "correct" approach will vary with local conditions and is, therefore, proper subject matter for both primary and community medicine.

2. *Primary medicine assumes longitudinal responsibility for the patient regardless of the presence or absence of disease.* In Magraw's (1971) term, primary physicians "hold the contract" for providing personal health service. Implicit here is the idea of an ongoing responsibility, which may be relinquished in part at times, but not terminated unless the patient agrees. Specifically, it is not limited to the course of a single episode or illness.

Emergency room medicine rarely has this ongoing aspect. Although it is first contact, it is not total primary medicine. Care of patients with chronic disease tests the definition from another aspect: many chronic conditions are lifelong, and often consultant or secondary level physicians assume longitudinal responsibility for the patient's care. The issue here is whether the physician sees the limits of his responsibility, the "terms of the contract," as defined by the disease or by the patient. The consultant practices complete primary care only to the degree that he is willing to assume responsibility for all three aspects of the definition.

Some observers point out that continuity of care by one provider may be a mixed blessing. Last (1967), for example, suggests that "it may become almost axiomatic to think of continuity of care as a desirable, if not essential, feature of adequate patient care. There is little supporting evidence, and it can be argued that continuity of care is against the best interests of the patient. Familiarity breeds contempt; continuity breeds uncritical acceptance of established diagnosis." His is an extreme position, but one that must be borne in mind. On the other hand, continuity has been associated with increased patient compliance (Charney, 1967) and lowered medical costs (Heagerty, 1970); there is no evidence that continuity is in fact detrimental to patient care.

3. *Primary medicine serves as the "integrationist" for the patient.* When other health resources are involved, the primary care physician retains the coordinating role. Moreover, the primary care physician or team is interested in managing to the limit of its capability the physical, psychological, and social aspects of patient care. This concept is undoubtedly the hardest one to define with precision. It often irritates the hospital consultant who is wary that by implication he is being considered less perceptive or even less

compassionate. After all, the consultant argues, the "good hematologist" is certainly as concerned with social and psychological factors affecting his patient with leukemia as is the family physician. The key distinction here is broadness of responsibility rather than broadness of vision. The primary physician is inclusive in his attitude toward his patient's problems, caring for as many of them as possible, and, where referral is indicated, retaining his longitudinal responsibility as the integrationist. The secondary level physician tends to be exclusive, concentrating his skills as much as possible and referring patients the moment their problems stray too far from his more limited focus of concern. Put another way, the primary care doctor spends most of his time thinking about the patient and the impact of various forces on his health or illness over a period of time. The secondary or tertiary level doctor spends most of his time thinking about a disease state or a technical skill and how various patients fit into or alter that field of interest over a period of time. For one, the illness is the episode; for the other, the patient is the episode.

What are the limits of this broad integrationist role? Here there is decidedly less agreement. When, for example, does the management of a patient with urinary tract infection become proper study for a urologist, and when does behavior disturbance merit a psychiatrist? We tend to make these decisions pragmatically based on the skill of an individual practitioner or the availability of an individual consultant—rather than on commonly agreed criteria.

Some would suggest that primary care ends when the patient is hospitalized, as is usually the case in Great Britian. "Ambulatory medicine" could then be said to equal primary medicine. However, certain inconsistencies spring to mind. Many medical problems that require consultant management are largely dealt with on an outpatient basis, with only episodic hospitalization; for example, chronic leukemia, collagen disorders, congenital heart disease. Conversely, the decision to hospitalize a patient is, at times, based on psychological or social factors in management rather than solely on medical complexity. For these reasons, we think that site of care alone—home, office, hospital—is an insufficiently discriminating indicator on which to base a definition of primary care; and, indeed, this fact has proved to be a major problem for programs that attempted to teach primary care. (See Section IV.)

How then can we describe the "vertical" and "horizontal" limits (McWhinney, 1967) of this integrationist function;—that is, how far into the medical complexity of the condition and across what range of "nondisease" factors ought primary medicine extend? We suggest the following operational criteria. The primary care physician or team's responsibility ends or is temporarily suspended when any of the following situations occur:

(a) the patient is not satisfied with the diagnostic or management plan and wishes consultation; or,
(b) the team itself does not feel competent to manage the problem alone or does not possess the necessary technical skill to do so;
(c) external review reveals limits in diagnostic or management ability. In this case, the issue is to be resolved by referral of such cases in the future, developing diagnostic capability at the site of care, or upgrading the management skill of the primary health team.

We include the last criterion advisedly. The opinions of the patient and physician alone may be insufficient to privide the kind of care now possible in contemporary medicine. Studies such as those by Peterson (1956) and Clute (1963) suggest that primary care is not often of good quality. Although these studies have been criticized for applying hospital standards to primary care, no other criteria are now available. In fact, this third criterion of external review may necessitate the development of such standards over some period of time (Richardson, 1972). The mutual scrutiny of practice that is relatively common in hospital medicine is conspicuously absent in primary care, especially in solo practice. In University hospitals, Mumford (1970) has observed relay learning in which physicians communicate information about patient management with good deal of mutual criticism and interaction. We believe that this kind of critical communication is central to continued professional growth and, by extension, to improving the quality of practice. Can this "relay learning" be achieved in primary care? Techniques of medical audit in this area are only now being developed and tentatively tested; but they hold promise of a major development for primary care and could provide a logical basis for continuing education as well. At any rate, the concept of external review appears to be gaining impetus in primary care as third-party payers demand increasing scrutiny and value for money spent.

It should be noted that by our definition of primary care "family medicine" is properly a subset of primary medicine. As defined by the American Academy of Family Practice (1969), all of family medicine is subsumed under the three

riteria listed: first contact, longitudinal responsi-ility, and a broad integrationist role. However, by ne same token, most pediatric and internal medi-ne practitioners are primary physicians as well Young, 1964); and practicing as a family physi-an is no guarantee that the doctor will care for all family members (Brown, 1971). We believe, like McKeown (1965), that it is unnecessarily restrictive to insist that primary care can only be practised when all family members are cared for by the same physician, although our own bias is that this would be preferable.

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II. Problems Of Primary Care Education

There are now fewer primary care practitioners available to our population than at any time in this century, and the ratio is continuing to fall (Severinghaus, 1965). Grouping non-Federal general practitioners, internists, and pediatricians in primary practice as "family doctors", there were 94 family doctors per 100,000 civilian population in 1931; 60 in 1957, and 54 by 1970 (White, 1964; Millis, 1966; Robach, 1971). Schonfeld (1972) estimates that, based on currently recommended standards of care, an adequate number would be 133 per 100,000 population. Some would consider this number excessive, however, in addition to being unattainable for all practical purposes. In contrast, Great Britain had between 40 and 50 general practitioners per 100,000 population in 1971 with reasonably good availability of care for the population. Of course, it is not easy to compare the two countries.

In the United States, the availability of a primary care physician varies enormously with geographic location; and, hence, a single figure for the entire nation conveys an unrealistic sense of the problem in a local area. Moreover, internists and pediatricians unlike the British generalist, assume a portion of secondary medical care for their patients; and this must be taken into account in any comparison. Of equal importance, such factors as the use of allied health professionals, changes in practice organization, and changing population growth rates will greatly influence the primary manpower requirements in the immediate future and compound any simple statement of ideal numbers required. Nevertheless, it can be stated that the number of primary care providers is now decreasing and will probably continue to do so as aging general practitioners retire. The lack of availability of primary physicians is a common complaint among the public, and two major public reviews of our medical care system identify the growing shortage of primary care physicians as the leading problem confronting our medical care system (Millis, 1966; Carnegie, 1970). It would be fair to state that this is a serious problem, but we caution that a careful analysis of the exact primary manpower need is a complex question in itself and beyond the scope of this monograph.

The solution to this problem, whatever its true magnitude, is more involved than merely insisting that medical schools must do a better job of orienting students to careers in primary care. The issue is complicated by a number of factors that impinge on the medical educational system. First, there is a good deal of current uncertainty about how primary care should be practiced, and this confuses the educator's task. Second, it would appear that factors outside education have at least equal influence on the quality of practice; and third, the experience of some other industrialized countries, such as Great Britain, is that manipulation of employment opportunity and pay may be sufficient to insure a reasonable supply of primary care practitioners, quite apart from the influence of the educational system itself. Let us consider each of these in turn.

How Should Primary Care be Practiced

■ Should primary care be practiced be by family doctors, internists, and pediatricians, or by someone other than the physician altogether? Should practice be solo or in groups; and, if in a group, in what size organization and with what structure? Is there one practice model that is ideal for urban and rural practice alike and equally applicable to the needs of the affluent and the poor? What is the appropriate role of the primary care physician in the social, psychological, and political realm?

An educator would be hard pressed to answer these questions, for it is extremely difficult to

organize coherent educational programs when there is little agreement on how those trained should practice. The problem is accentuated, because there is not one but many patterns of primary care practice at present. In various countries or regions of our own country, primary care practitioners may be generalists or specialists, may practice solo or in groups, may be involved in teams with allied health professionals, and, in some instances, may not be physicians at all (Sidel, 1968; Fry, 1969). Furthermore, the present patterns continue to fluctuate. Friedson (1971) reminds us that the publicly acknowledged professional role of the practicing physician is less than 100 years old and has not in fact been handed down in its present form from Hippocrates. In short, there is no one universally accepted model of sufficient venerability as to make change unthinkable. There are several separable themes in the discussion of the physician's role in primary care:

Should the doctor be involved at all? Can primary care be divided into sufficiently discrete and repetitive tasks that can be learned by less extensively trained professionals and nonprofessionals, so that the physician can retreat to a centralized hospital and await the "triaged case"? Garfield's proposals (1970) are oriented in this direction, and the use of isolated feldshers or nurse practitioners in such roles already exists in some locales (Sidel, 1968). We would side here with Magraw (1971) and Jefferys (BMA, 1968) who feel that there is and continues to be an important professional role for the physician in primary care. Moreover, White (1967) has suggested that the primary care relationship is the fundamental basis for the contract between the profession and society and that to abrogate this role would require a major reordering of that relationship.

If the physician is involved in primary care, what kinds of professional associates are required and in what kind of organizational team structure? Due to the pressures generated by a heavy patient load, the primary physician clearly requires assistance. A fundamental question that must first be resolved is whether or not he should separate out and delegate specific tasks to subordinates or share some of the decision making with allied personnel in a coprofessional team model (Bates, 1970). Indeed, some discussions of primary care already assume that a team, rather than a physician alone, is involved (Hansen, 1970).

What kind of practice setting is best for the primary care team? Here questions of size are involved, as well as the interrelationship of primary care to the patient on one hand and to consultant or referral medicine, on the other. Such questions as the following are posed: How can we achieve the efficiencies of a large organization without losing the personal and human qualities supportedly characteristic of a small one? Will a "technocracy" of primary care develop, as has occurred in the hospital, so that the often tentative and ill-defined needs of the patient are lost in what could become a computerized multiphasic medical center? Should primary care systems be hospital based, or should a new system be organized within the community but away from the hospital (Somers, 1971)? How much consumer involvement and control is optimal for primary care; and what, if anything, should be reserved to the "professional" domain?

In the absence of needed research findings, the scarcity of data on any one of these patterns makes it difficult to answer these questions with any degree of finality. However, educational programs, because they involve practitioners of the future, will influence and be influenced by these considerations. As Haggerty (1969) has suggested, part of the university's function in primary medical care is to conduct research that will help resolve these problems. For the present, medical educators will at least need to be cognizant of these issues as they plan programs and stress the evaluative aspects and research component as programs develop.

Relative Importance of Education

■ How important is the medical education process itself in producing the kind of primary care practitioner we need? Educators often fail to appreciate how other influences both before and after medical school and residency may have a major impact on how medicine is practiced. Friedson (1970) states the case forcefully for the influence of the ultimate work setting on practice. He cites extensive evidence that deficiencies in medical school experience do not explain some important deficiencies of professional performance "half so well as does the organization of the immediate work environment." He notes studies that found that the same individual hospital physicians behaved differently when their supervision varied. He also sites the findings of Peterson (1956) and Clute (1963) who found little relation between variation in professional education and the technical performance of general practitioners many years after graduation. Studies of case workers and lawyers (Carlin, 1966) also suggested little relationship between education and quality of practice. Finally, Gray (1966) in a longitudinal study of medical

students found that equally "cynical" medical school graduates later differed in cynicism according to the type of practice in which they were engaged. To Friedson, these studies emphasized the importance of the social setting in which the professional worked rather than his education.

Funkenstein (1971) suggests that the medical student reacts to factors outside of medical school rather than to the influences of curriculum, teaching, or research. He observed that changes in career orientation occurred simultaneously in first, second, and fourth year students; an event that coincided with apparent changes in society that placed more or less value on certain career choices. For example, his data suggests that, in the late 1960's, interest family medicine became a public concern and was reflected by increased interest in family medicine in all three medical school classes at the same time.

The lesson to be drawn by medical educators from such data is that there will be value in integrating primary care education and primary care practice. As we elaborate in later section, consultant medicine is more closely linked to medical education than primary medicine. By and large, consultants practice in hospital settings that are quite intimately related to where education is going on, whereas primary care practitioners operate in solo or in groups quite isolated from the usual educational milieu. Insofar as the setting is influential in affecting the nature and quality of practice, it would be valuable both for student and practitioner to be in closer contact with each other throughout training and practice.

There is some evidence that manipulating the circumstances of practice alone may be sufficient to provide adequate numbers of primary care practitioners quite apart from what takes place in medical school and in the teaching hospital. The experience in Great Britain is instructional. On entrance to medical school, somewhat fewer British students than American students cite general practice as their goal—16 percent compared to 22 percent (Harris, 1969; Pavia, 1971). By graduation, the picture has reversed itself. While less than 10 percent of American seniors are headed for general practice; by then, 28.6 percent of British students are so oriented; and even more will eventually end up in this field (Harris, 1969; Calahan, 1957). What accounts for this shift? Has their relative educational experience been the determining factor? Our observation is that the British medical student's education is at least as hospital- and specialty-oriented as his American counterparts, if not more so. British schools are all, in fact, hospital-based programs. While almost every medical school provides some experience in general practice for the undergraduate, this lasts usually only one or two weeks out of five years. Inasmuch as all hospital-based physicians are, by definition, specialists, there is little opportunity for the student to observe primary medical practice. The movement toward formal education in general practice is just beginning to take hold in Great Britain; and, thus far, it is concentrated at the post-graduate (residency) rather than at the medical school level.

All of this suggests that if education has had any influence on the student's choice of a primary care career in Britain it would have to be a negative one; namely, dissatisfaction with what he sees of hospital medicine. A more likely explanation is that there are only limited numbers of specialty consultant posts available; and, therefore, there is a strong incentive for those who see little change of achieving consultant status to opt for general practice. In short, most medical students must enter general practice, like it or not; and by graduation this has become increasingly evident to them. Recent increases in the pay of general practitioners relative to hospital-based doctors has been a further influence, external to the educational system, that has served to improve recruitment to general practice.

The lesson here is that factors of work environment, remuneration, and relative employment opportunity are powerful determinants of the primary care manpower supply, quite apart from what goes on within medical education. In fact, internal change in the education milieu alone, in our view, will be quite inadequate to redress the present imbalance.

Nevertheless, as medical educators, we are committed to develop the best educational system we can. If, as is abundantly evident, good education will not guarantee good practice, inadequate education is even less likely to do so. Our contention is that, in addition to the external factors we have listed, there have been problems within medical education that have resulted in inadequate preparation for primary care practice. These problems have a common underlying feature; namely, that preparation for primary care practice has not been a specific goal of most current medical education programs and has not been the specific responsibility of any one group. Jason (1970) states the case even more strongly—calling the mismatch between student education and physician career educational malpractice. He reminds educators that over 90 percent of medical

students do end up in practice careers, mostly as specialists; and only one medical school in the country has as many as 13 percent of its graduates entering full academic careers. We will consider this point in further detail in the monograph, but it is worth summarizing in this initial section.

This criticism of failure to prepare for primary care practice applies to all levels of the current educational process: student selection, medical school, internship and residency, and continuing education. For example, selection procedures for medical school still rely heavily on the demonstrated scientific ability of the applicant; even though there is little evidence that scientific ability is predictive of success in medical school and even less evidence that it correlates with success in practice. The problem is that useful criteria for selecting future primary practitioners do not now exist. Indeed, the development of such criteria has not been an important consideration in the post-World War II period.

Within the medical schools, there have been inadequate efforts to orient students towards careers in primary care. The failure to educate for primary practice represents a significant historical change, as there has been a gradual shift in the overall purpose of undergraduate medical education, which has worked to the detriment of primary medicine. The change has been stated quite explicitly. In 1954, an editorial in the Journal of the American Medical Association stated:

> *"In previous years, many medical schools stated as the major objective of their undergraduate teaching programs the preparation of students for the general practice of medicine. Currently, however, most medical faculties embrace as the major objective . . . the provision of a solid framework of fundamental principles applicable to all areas of medicine" (J.A.M.A., 1954).*

In other words, after World War II, the preparation of the "undifferentiated physician" became the goal of medical schools, acknowledging the growing responsibility of residency training to complete his education for practice. Our perception is that even this has changed—giving way to the current goal of preparing a "variably differentiated" graduate. The student has now been oriented toward a field of practice that is rather firmly established by the time of his graduation from medical school. The curriculum revisions of the past decade have tended to further emphasize this early career choice for the student. A largely elective fourth year of medical school plus a straight internship compel the student to make his career choice well before graduation from medical school. In addition, the integration of the internship into the residency further pushes the student toward an early career decision as did the replacement of the rotating by the straight internship. Inasmuch as primary medicine is rarely presented as a clinical rotation in medical school, while an array of specialities are seen as real possibilities, a career in primary medicine has neither the attraction of the carrot nor the force of the stick at precisely the time when the student must make his choice. In short, not only do four years in medical school no longer, in themselves, constitute the necessary and sufficient training for primary care practice; but that field also has been relegated to an unseen option, downgraded by its omission.

In addition, a particular problem of undergraduate programs that is most closely related to primary medicine is that they often confuse this term with "comprehensive" medicine. What these programs have emphasized are the social and psychological aspects of medicine, central in themselves to all good medical practice, but not equivalent to primary care. In addition, their settings (usually in the hospital), their faculty (usually full-time hospital specialists), and their patient population (usually the poor or the university community) are sufficently atypical to represent unfairly either the usual or the ideal in primary care.

At the graduate level as well, there is a loss, or at least a blurring, or identity of primary care education. The residency originally developed as specialty training, intended as a body of knowledge and skill added onto that of the generalist. The fact that now most internists and pediatricians in many cases, often tend to be generalists—increasingly so as older general practitioners retire—means that there has been considerable lack of "fit" between education and practice in these fields. The average graduate of a university program in medicine or pediatrics is superbly prepared for practice as a chief resident—a career that does not exist.

Finally, the particular importance of continuing education for the generalist is only now being appreciated. Although there are many courses and programs for the practitioner, most have failed to demonstrate their efficacy. Primary practice is especially isolated from continuing education stimulation in contrast to that given to most specialty practice. Furthermore, most continuing education is subject to the same specialist orientation as is the rest of medical education. This fact has resulted in programs less attuned to the needs and views of the learner than they ought to be.

We will return to these themes and amplify them as various programs of primary care education are

reviewed. Our main concern is that education has been allowed, indeed subsidized, to educate the specialist while not being required to the same degree to attend to the needs of the primary care practitioner. In the absence of outside restrictions on specialist practice, the result has been starvation of the primary care sector. The implications of some of the other factors we have examined is that physician education for primary care cannot be conceived and implemented without regard to the way medicine is practiced in our society. Medical educators will need to be involved in the political processes of the profession and society, which together dictate how medicine will be practiced. Ideally, the education system and the practice system have something to offer each other—relevancy for the former and ongoing professional growth and development for the latter.

Assumptions of the Monograph

■ As we have outlined, there remain important unresolved issues in physician education for primary care. Nevertheless, as with medical practice, those in medical education will have to make decisions now for training based on incomplete data. At least for the purposes of this monograph we will make the following assumptions:

1. *The demand for primary care providers will be increasingly articulated by the public and expressed in legislative mandate.*

In Friedson's terms (1970), society will reexert its control over the profession, at least in this area, and withdraw some of the autonomy it has granted the profession to train its own members in unrestricted fashion. As Pellegrino states (1971), "There is (now) serious discontinuity between the interests and goals of medical faculties and the interests and goals of the society that supports the schools. In any such counter position the educational establishment, despite its strength and expertise, cannot long prevail."

2. *University involvement will increase in primary care education at all levels, from medical school through practice.*

The university has been responsible for directing undergraduate medical education for the past fifty years. Its responsbility for residency and continuing education have been less well defined. It is likely that the university's role as coordinator and possibly director of graduate and continuing education will be acknowledged and supported. This extended role will most likely continue to be shared with those who represent the public and the practicing medical profession.

3. *There will be a significant professional role for the physician in primary care.*

However, the changing nature of illness in modern society will alter that role, requiring more emphasis on management than on cure—"health care" rather than "medical cure" in Millis' terms (1971). It is unclear at present whether the primary physician will be a family doctor, a general internist plus a general pediatrician, or both. Although assistance for the doctor is required, it is uncertain whether a "hierarchical team" or a "co-professional" will emerge; also unknown are other skills that will be represented on the health team. Similarly, the optimal size and setting for primary practice groups is as yet undetermined. Nonetheless, the physician will likely retain, as we believe he should, the key responsibility in primary care.

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III. History Of Education For Primary Care

Medical education in the United States, which is now considered by much of the world to offer a standard of excellence, has been characterized by periodic upheaval and reform. The names of Morgan, Osler, Flexner, and Millis stand out as associated with major efforts to redirect medical education in this country; and they have special significance for primary care education. In the 18th Century, Morgan advocated high-quality education and pleaded for a model similar to the full-time European university system. Osler, the great clinician, brought teaching to the bedside of the patient. Flexner, the educator, whose name is associated with the immense upheaval in medical education early in the 20th century, exposed the proprietary schools and established the university as the major force in undergraduate medical education. The name of Millis is associated with current attempts to alter undergraduate and graduate medical education in the direction of primary care and to expand university responsibility to include graduate education.

Medical education in the United States was challenged by Morgan, who had been influenced greatly by his European education (Moll, 1968, Hall, 1896). In 1765, he wrote his celebrated *Discourse upon the Institution of Medical Schools in America* (Morgan, reprinted 1937). He recognized the medical school as an effective social organization for learning and saw it as preparing medical students for practice. He anticipated specialization and argued persuasively, although unsuccessfully, for the move away from the apprentice system to the full-time system as developed in European universities. While Morgan became the first American Professor of Medicine at the University of Pennsylvania, his discourse was largely ignored. Medical schools in the United States developed as proprietary schools, and education was largely accomplished by the apprenticeship. Morgan's plea about university affiliation was lost.

In an attempt to provide physicians for a rapidly developing and expanding country, America then entered what has been characterized as a dark age of medical education (Robinson, 1935). Although the low quality of medical education was America's educational scandal, proprietary schools did produce large numbers of primary care physicians for a country that needed physicians for its expanding frontier.

At the end of the 19th Century, Osler expressed the view that medicine must bring its educational house into order. Like Morgan, Osler emphasized the necessary relationship between the university and the medical school. Deploring the criminal laxity in standards of medical schools, he accused medical colleges in the United States of being unresponsive both to the public and to the profession (Osler, 1905). True, the proprietary school graduated large numbers of physicians, but the quality of their education was decidedly poor. Osler emphasized the value and benefits of teaching students by the bedside of the patient and stressed the importance of developing clinical skills and responsibility. In many ways, Osler prepared the way for Abraham Flexner, whose report in 1910 (Flexner, 1910) documented the vast extent of the medical education scandal.

Our interest is not with the detailed content of this report but with its results, which dramatically improved American medical education. Proprietary schools began closing overnight, and the remaining medical schools established ties with universities as urged by Morgan, a century before (Evans, 1965). However, association with a university, prior to Flexner, was no guarantee of quality; and this report was even critical of many university medical

schools. Flexner demanded that the university set and control standards for medical education.

Although advances and reforms were needed, some felt that Flexner's recommendations were too rigid and confining. MacKenzie (1918) called Flexner "doctrinaire" and advised against the full-time academic model for faculty, which had also been suggested for the United Kingdom (Newman, 1918, 1923; Flexner, 1912). The model of medical education in the United Kingdom was based in a teaching hospital usually without university control (Jefferys, 1969). MacKenzie also cautioned about putting medical education completely in the hands of full-time teachers. He pointed out that, in a hospital, students did not see illness with non-specific physical signs. These observations could only be made in the community where medicine was practiced and not in a hospital where students were than being educated.

Medical education in the United States is now totally changed. The full-time university model as developed at the Johns Hopkins Hospital became the established educational pattern (Evans, 1965). Education for practice took place almost entirely within the university and its related teaching hospitals. Subsequent results led to today's problems: i.e., the complexity, the fragmentation, and the inflexibility of standards for graduate medical education. As a consequence of the Flexner report, general practitioners could no longer be full-time faculty; and the stage was inevitably set, at least in the United States, for the decline in both the quantity and quality of general practice and primary care (Haggerty, 1963).

Voices were raised with the complaint that medical schools were not educating physicians for practice. Inadequate attention was being paid to the art of medicine (Rappleye, 1932; Curran, 1948), principally by failure to attend to social factors in illness and to consider the patient as a person (Peabody, 1927; Dublin, 1947; Means, 1946; Propst, 1939; Robinson, 1935; Reynolds, 1939, Thornton, 1937; Rice, 1939; Cannon, 1946; Colwell, 1946).

Some efforts were made to alter the perceived situation. Five years before the opening of the Johns Hopkins Medical School, Billings advocated sending students into patients' homes (Curran, 1948). In the 1890's, Osler and Welch had assigned third-year students to investigate the home conditions of patients with tuberculosis. A social service department was established at the Massachusetts General Hospital in 1912, where Edsall and Cannon developed social clinics to view the patient in his social setting. In the 1920's at the Boston City Hospital, Minot and Cannon also established a social clinic. Their intent was to emphasize the importance of social factors in illness for the student in both medical school and hospital (Minot, 1925; Cannon, 1934). Similar programs developed at other medical schools (Harvey, 1946; LaSaine, 1940), and most of these had as stated objectives that the student was to study the social, medical, personal, and sanitary backgrounds of his patient. One result of these efforts was the incorporation of the social and family history as part of a traditional medical history.

Such programs were often located in the outpatient department due to the prevalent view that the outpatient department was the place to learn about medical practice. Although their organizers were generally enthusiastic, the efforts gained too little academic support, either financially or professionally. These efforts were not subject to critical evaluation; and, when evaluated, the evaluation usually consisted of case examples of beneficial outcome; surveys of graduates were also undertaken (Cohen, 1941; Melaney, 1939; Cockerill, 1941).

Robinson summed up these programs philosophically by stating that their purpose was to consider "the patient as a person" (Robinson, 1935, 1939). His program in the Eastern District of Baltimore became a significant extension of the social clinic, when he suggested that a hospital might have responsibility for a specific community. Within a decade, concern for the patient was also extended to include not only the patient, but also his family (Richardson, 1945) with the suggestion that the family rather than the individual should be the logical basis for medical care.

During the 1930's, the full-time specialty system so dominated medical education that these programs either remained merely philosophical without implementation or, when implemented, remained outside of the mainstream of medical education. New departments were established and their faculties were increasingly composed of specialists (Stevens, 1971). The resulting fragmentation of medical care was considered less important than the goal of achieving scientific excellence.

In some quarters there was continued interest—indeed, concern—in the relationship between medical education and practice. The privately supported Committee on Medical Costs (1932), which had been established by a concerned group of laymen and physicians, recommended the training of physicians in the teaching of health and the prevention of disease as well as restriction of entry

into the specialties. The Committee also recommended that teams of health professionals organized around the hospitals provide complete therapeutic and preventive services—whether in the home, office, or hospital setting. The personal relationship between the physician and patient was seen as important; and the Committee recommended community medical centers with generalists, group health insurance, and group practice. In fact, this report recommended that 80 percent of all medical graduates should function as generalists. This early report and its recommendations were overshadowed by the depression and, unlike the Flexner report, had no substantial impact on medical practice or education (Richmond, 1969).

It was in the fields of psychiatry and preventive medicine that further developments of some relevance to primary care education occurred. For psychiatry, primary medicine was equated with the psychological and psychiatric aspects of practice and psychoanalytic principles (Group, 1962). For preventive medicine, primary care largely meant considering the social, economic, and environmental factors that produced and influenced illness (Leathers, 1939). Programs in these departments were not so much attempts to educate large numbers of physicians for primary practice, as to equip physicians with psychiatric or preventive medicine skills.

In the late thirties and early forties, well-defined programs for preventive medicine teaching could be found in about one-third of the medical schools (Curran, 1948). However, only 11 (14 percent) of the medical schools and 13 teaching hospitals were considered to have medical social departments that contributed to adequate teaching of medical students (Bartlett, 1939). Additional programs were initiated due to concern for the patient after hospitalization (Jensen, 1944). Followup became an important aspect of both medical and surgical care.

Conferences on the role of psychiatry in medical education were held in 1933, 1942, and 1952 (Ebaugh, 1933; Ebaugh, 1942; Whitehorn, 1952). These reports noted the contribution that psychiatry could make to the general practice of medicine through teaching interviewing skills, the understanding of psychosomatic disorders, and the obvious importance of dealing with psychological issues surrounding organic disease (Lidz, 1956). Psychiatry was perceived as a major component of family, comprehensive, and, by our definition, primary care (Lidz, 1970).

The inclusion of behavioral science in the medical curriculum was also suggested in the 1930's and the 1940's. Warbasse (1932) pleaded for a course in the medical school that would combat "the monastic seclusion of the medical student," whom he saw spending four years becoming a medical technician. President Angell of Yale spoke of the study of medical sociology as important enough to create one or more new chairs of medical sociology in medical schools, a suggestion that was not accomplished (Angell, 1933). In the late 1940's, a series of lectures in medical sociology were sponsored by the Department of Medicine at the Harvard Medical School (Sociology, 1946); this course expanded to become the major focus for teaching preventive medicine in that school.

The continued ferment in medical education over the failure to teach social and psychological aspects of practice, as well as the continued need to educate for practice, was noted in the next generation of conferences in the early 1950's. These were the conferences on psychiatry and medical education (Whitehorn, 1952) and the conference on the Teaching of Preventive Medicine in Medical Schools (Clark, 1953). There were also two conferences on world medical education at which considerable attention was given to education for general practice (Proceedings 1954, 1961).

The teaching of social and psychological skills in social medicine and psychiatry came together in the 1950's in the concept of comprehensive medicine (Matarrazzo, 1955). To Matarrazzo, the advent of comprehensive medicine was the dawn of a new approach in medical education and ulitmately in the practice of medicine. Yet, these efforts also remained outside the mainstream of medical education.

Following the Second World War, research in medicine accelerated to an unprecedented degree. Financial support to medical schools through the National Institutes of Health helped bring into full fruition the Flexner research model. Funds earmarked for research subsidized education; because the faculty, growing in size, was largely supported by research grants. These grants emphasized specialization, because research was highly technical and specialized. In addition, graduates in medical education also received post-doctoral fellowships that promoted this trend toward specialization. The enlarged full-time staff resulted in a decline in the influence and importance of the part-time medical faculty.

Berry (1953) initiated a series of annual teaching institutes that were concerned with educational reforms and evaluation (Gee, 1958; Comroe, 1961; Wolf, 1962). He reported six experiments primarily in teaching, integrating curriculum, and learning comprehensive care skills that were supported by

rivate foundations, particularly the Commonealth Fund and the Kellogg, Rockefeller, and ilbank Foundations. Most of the foundation suport was for the comprehensive care programs that ad been developed in order to provide a more umanistic base for the physician. Reviews of these nd related experiments appeared (Lee, 1962; noke and Weinerman, 1965; Sanazaro, 1968), as id particularly detailed reports of studies at Colrado (Hammond, 1959), Cornell (Reader, 1967), Vestern Reserve (Kennell, 1961), and Harvard Haggerty, 1962; Stokes, 1963).

What had happened to general practice in the eriod since Flexner? Efforts had been made in he 1920's to reintroduce preceptorships for medial students (Kerr, 1926; Bardeen, 1928) in general ractice, but these attempts were isolated and did ittle in the long run to attract students to the field r to reverse the decline in numbers of general ractitioners. Although a few schools in this period nade use of preceptors, these efforts were in the hadow of the teaching hospital. The bitter critcism of the proprietary schools extended to all orms of apprentice education, including preceporships. Most of the schools that did use preceptor rograms were in rural States, where the apparent ommitment to produce a general practitioner who vould provide primary care did not disappear as apidly as in the urban schools.

In 1941, a resolution urging creation of a board f general practice was rejected by the House of Delegates of the American Medical Association on he grounds that passing a State or National board examination automatically certified a physician to lo general practice. In 1946, a section on general ractice in the American Medical Association was stablished; and, in 1947, the American Academy f General Practice was founded and became ctively engaged in attempts to increase recruitment for general practice. In 1959, the American Medical Association defined the terms "family hysician" and "family practice"; and a series of rograms were established that offered for the first ime specific residency training for general ractice, but they remained largely unfilled (Stevens, 1971). Financial barriers to specialization vere removed with support through research felowships and residency programs; and the general ractitioner or "L.M.D." became an unattrative nodel to medical students. The academic comnunity largely ignored the need for primary care hysicians.

Some general practitioners and academicians saw future for general practice in the "new" disipline of family medicine (Rardin, 1961). This discipline was defined as the continuing and comprehensive care of the individual patient and his family regardless of age. Some placed emphasis on the psychosocial skills of the physician in addition to the usual pediatric, medical, psychiatric, and obstetric skills. Programs were again initiated at certain medical schools that were consistent with the model of a family physician (Kennell, 1961; Haggerty, 1962).

In the mid-1960's, a series of reports called for a national commitment to the education of personal, primary, or family physicians (Millis, 1966; Coggeshall, 1965; Willard, 1966). Millis, who was then president of Case Western Reserve University, chaired an American Medical Association committee of laymen, educators, and physicians that produced the Millis Commission Report. This report, in one sense, was an expansion of the much earlier Flexner Report; it called for extension of university control to include graduate (residency) training. This was accompanied by a call for a national commitment to produce primary care physicians who would, for most patients, represent the common point of entry into a reorganized, revitalized, and rational system of health care delivery. Following these reports, the specialty of Family Medicine was approved in 1969 with the support and the leadership of the American Academy of General Practice and a small number of academic physicians. The Specialty Boards of Medicine and Pediatrics also responded by developing a dual certification in Family Medicine. By spending four years in the hospital—two in pediatrics and two in medicine, a physician would be prepared to function as a family physician. However, pediatrics and internal medicine had their own problems in establishing and accepting their identity as primary care disciplines. Thus, it was difficult to see how the combined program would succeed in producing a family physician. This move could also be interpreted as one whose intent was to frustrate the developing Board of Family Practice.

Opposition to the specialty of family medicine was still noted in testimony against government funding for family physician programs. Despite this opposition, the legislation, passed in 1971, provided the first funds for financing programs in family medicine. Despite this opposition, the legislation, passed in 1971, provided the first funds for financing programs in family medicine. Medical schools and teaching hospitals began to develop training programs for primary care physicians as well as nonphysician personnel. Following the establishment of the Board of Family Medicine,

there was a growth of postgraduate programs and establishment of new departments of family medicine (Magraw, 1971). By 1972, there were over 100 recognized residency programs.

In the 1960's, public outcries were made over the disadvantaged population that had not benefited from what had been called and was then believed to be the "finest medical care in the world." The "rediscovery" of poverty and the spiralling costs of medical care forced the Nation to reexamine its medical priorities. The immediate results of this reexamination were a slowing of the research effort and the involvement of the Federal Government in many large-scale service programs. With the establishment of the National Center for Health Services Research and Development, research on health services delivery became a more important activity of Government.

Medical school departments of preventive medicine, obstetrics, and pediatrics became involved in primary care as funds became available in neighborhood health centers, children and youth programs, and maternal and infant health projects. Medical schools and teaching hospitals were being confronted in the 1960's with a population who were using their facilities for primary care but who, in fact, were receiving fragmented health care. Patients made increased use, mainly for primary care needs, of the outpatient and emergency facilities to such a degree that many investigators began to study the problems of institutions providing primary care. Service programs outside the hospital and medical schools were seen as a new and legitimate activity.

Public awareness of poverty and the admitted manpower crisis accelerated students' demands for opportunities to provide service. At Harvard Medical School, for example, in the two-year period, 1968-1970, there was an increase from 3 to 26 percent in first-year students who expressed a desire to be family physicians. Many medical students began to question the research-oriented model of the medical schools and identified their desire for service with the developing discipline of family medicine.

New medical schools were established in response to an acknowledge manpower crisis, both in the inadequate number of unequal distribution of physicians. The crisis was especially noted in obtaining primary medical care. General practitioners were not being replaced by younger practitioners. To illustrate, the ghettos of large cities had almost no general practitioners to meet the primary care needs of the disadvantaged population, and rural areas had none.

There was no evidence that the new medical schools would actually produce primary care practitioners. The admission by medical educators that there was a need to educate for primary care was, of course, a necessary first step; but the attitude in most medical centers toward general practitioners continued to be a condescending one. Clearly, the battle to produce practitioners was unlikely to succeed without a major change in the climate of the medical school and the fundamental goals not only of the medical student, but also of the medical faculty.

Recognition of the need for primary care physicians, through the efforts of Millis and others, and the shift in career interest in medical students to family physician and related careers now required the development of substantive educational programs. These programs needed to be developed in the very settings that had proved so hostile in the past; namely, the teaching hospital and the medical schools. Efforts to develop educational programs outside the medical centers had always been perceived away from the mainstream of medical education; and, even when successful, such programs had done little to change the basic commitment of the medical center. Medical students had come to medical school as potential general practitioners and had been graduated as embryo specialists. Would it ever be possible to produce programs in this setting that would alter the failures of the past? Because considerable study had been made of medical education itself, we will briefly examine medical students, faculty, and their medical school experience. We can also examine specific programs that can provide us with suitable guidelines for current attempts to develop new programs in primary care.

Selection for Medical School

■ It is possible that the majority of students accepted in medical school were the ones least likely to pursue primary care careers? Acceptance to medical school has always been very competitive; and medical school admission committees have been faced, since the end of World War II, with the prospect of selecting classes of 100 to 200 students from an applicant pool numbering in the thousands—only 50 percent of whom were ultimately accepted.

In general, accepted candidates were more likely to have majored in the sciences, to have had high scores on their medical college admission tests, and to have had high grades in college. These students generally attended private rather than public universities and overrepresented the middle and

upper-middle classes (J. Med. Ed, 1969; Gee, 1958: Rodzinski, 1965).

Yet, the majority of these students, at least on entering medical school, indicated a desire to pursue primary care careers (Haggerty, 1963). As seniors, however, their career choices were definitely directed toward the specialities. Their commitment to a primary care career had not been sufficiently strong to resist the pressures of specialization that existed within the medical education setting.

Perhaps potential primary care physicians who could have resisted the pressures to specialize were discouraged from applying to medical school. For example, would students who were less scientifically oriented have pursued primary care careers? In the 1950's and 1960's, there were attempts to encourage students who had a major interest in the nonscientific fields to apply to medical school. However, medical school catalogues stated that those who applied with a minimum of scientific courses would be expected to excel in these courses (Dove, 1970). The nonscientist could have been easily discouraged by such an approach.

What about students who were underrepresented in medical school such as blacks, women, and the poor? Were they the students who would have resisted the pressure to specialize? While medical schools could point to the fact that in the fifty years from 1900 to 1951 the medical student pool had become more, rather than less, representative of the population at large (Adams, 1953), there could be little denial that blacks, women, and the poor were underrepresented. For example, before 1910, the financial burden of a medical education was not great; and a poor individual could consider becoming a physician (Stevens, 1971). The expense associated with university education and prolonged specialty training meant that the expense of a medical education was now a significant barrier to the poor; in addition, blacks and women were discouraged from applying, the former by economic and racial discrimination and the latter by defining medicine generally and many of its more attractive specialties as careers for men.

Suggestions were made that one way to get physicians for the ghetto was to recruit from this setting. For example, the black, poor students were expected to return to their disadvantaged communities as primary care practitioners. While less scientifically oriented, these students presumably would be more humanistic and more representative of their race. However, there is no evidence that these students either possessed such characteristics or greater promise than those who had not suffered deprivation or, if they did, would become primary care physicians if exposed to the same medical experience as their colleagues and predecessors.

The Medical School Experience

■ How do medical education and the medical school setting actually influence the medical student? To what degree does medical education shape the attitudes and career choices of the student and to what degree does the student react to the society outside of the medical school? These questions are fundamental if, as suggested earlier, we are to believe that medical educational reform can influence the medical undergraduate and his choice of career.

In the 1950's, Becker and colleagues at the University of Kansas described a "secret" society of medical students, which was formed in response to the academic shock experienced by the beginning medical student (Becker, 1961). This shock was caused by the overwhelming amount of material presented to the students to master. The student's ability to memorize was emphasized rather than his desire to help patients. The student therefore, did not perceive himself as belonging to the profession of medicine. The faculty viewed the students not as professionals but as students on probation and, hence, the title "Boys in White." The students, through their various subcultures such as the fraternity or cadaver groups, oriented their behavior to this new reality. They structured their activities so that they conformed to the faculty culture. Many of Becker's findings were confirmed by Miller (1962) at Buffalo.

On the other hand, at Columbia, Merton (1957) found that the faculty and students formed a much different relationship in response to the same cultural shock. He characterized this different relationship by the use of the term "student physician". Rather than develop a secret society, the students began from the first year a process that allied themselves with the faculty. Merton noted that students at schools like Cornell, Pennsylvania, and Western Reserve felt that the faculty took a much more personal interest in them than at Kansas and Buffalo; and he also observed that this interest was an important expression of the colleague relationship.

The colleague relationship developed in spite of the fact that initially the goals of the Columbia student and faculty were not identical. The faculty saw the production of scientific physicians as their chief educational task; while the students, initially at least, identified themselves strongly with careers

in general practice. Gradually but surely, the student adopted the faculty goals. They aspired to be either academicians or practicing specialists rather than practicing generalists.

Bloom's (1971) study at State University of New York at Brooklyn suggested a third kind of student culture, intermediate between the previous two. He found that the faculty was interested in research and that they believed that teaching was an imposition on their time. The student viewed his medical school experience as a necessary four-year initiation that he had to endure to become a physician. The students wanted to practice medicine as specialists, maintain relationships with the medical schools as teachers but not as researchers, and were interested in patients as opposed to impersonal technical problem solving.

What can we say about the faculty? The faculty, full or part-time, basic science or clinical, represent a wide range of thought and experience; and generalizations about them must be made cautiously.

Students first come in contact with the preclinical–basic science–faculty. It is this faculty that presents students with the vast amount of material that results in the previous described cultural shock. It is the basic science faculty that is most likely to consider students in a probationary status rather than colleagues (Becker, 1961); it is this faculty that is least likely to provide the student with role models (Hughes, 1959).

On the other hand, the clinical faculty also has its conflicts with students. Most of the full-time clinical faculty members are anxious to do research, and they view teaching as interferring with their major research activity (Bloom, 1971). Many believe their students are too "practically" oriented. Bloom found a different relationship between the part-time and full-time clinical faculty and students. The part-time faculty members were more likely to share common goals with students than were full-time faculty. Also, the full-time faculty wished to train academically oriented physicians and influenced students away from their original goal of becoming generalists. Coker (1960) presents evidence that faculty can influence the career choice of students.

Mendel (1965) observed that the attitude of students towards patients tended to parallel the attitude of the faculty towards students. Thus, if the faculty were authoritarian and punitive, the students were likely to display similar relationships with their patients. Gottheil (1969) found that when the student during his third year perceived his environment as warm, reinforcing, and humanistic, he managed his patients in a similar way as a fourth-year student. Thus, if students were hostile to their faculty, one would be concerned about the general attitudes that students adopted toward their patients.

Dowling (1964) however, reported that students found their full-time clinical teachers to be more supportive and to deal more humanely with patients in the hospital than did the part-time clinical faculty. This fact suggests that the student who identifies himself with patient care could find somewhere in the immense medical school faculty a role model who would reinforce in the student's mind the kind of physician the student wishes to be.

Despite these findings, the medical school may have relatively little influence on its students; it may be, as noted in a previous section, that students, faculty, and the medical school are more influenced by society at large. (See page 17.)

Becker (1958) and Eron (1955) noted that students arrive in medical school humanistically oriented; but, by the end of their medical school experience, they are more cynical. This is explained not by the alleged dehumanizing process of medical education as has been suggested, but by the fact that it is a temporary adaptation on the part of the student to the pressures imposed on him by the medical school. As the medical school experience ends, the student's original idealism returns. By this time, however, it is unlikely that the student will express his idealism through the pursuit of a primary care career.

In summary, medical education is the acquisition not only of skills and knowledge, but also of the values, interests, and attitudes of the profession. The climate of the medical school and the acceptance of a student either as a boy or a colleague should have an enormous impact on the attitudes and career choices of medical students.

In the following sections, we will consider undergraduate, graduate, and continuing education programs in family medicine, internal medicine and pediatrics that were directed at primary care. This discussion must have the limitation of any literature review. Many programs no longer exist in the form described. Most of the articles are descriptive rather than evaluative; many describe proposed programs that are not currently operational. Nevertheless, what has been reported to date provides valuable background for interpreting current educational efforts. As we shall show, information is available that contains almost all of the ingredients necessary for development of primary care programs for the decades ahead.

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SECTION III

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IV. Undergraduate Program

The closest medical education has come to a planned program for primary care was in the first decade of this century when undergraduate education plus a rotating internship constituted sufficient preparation for general practice. The development of medical specialties changed this situation. Moreover, many programs we are including as primary care programs were not really directed at preparation for practice. They were attempts to improve the hospital care of patients, such as introducing followup to hospital care (Curran, 1945; Jenson, 1944) or attempts to reverse the fragmentation of care in the outpatient department. The programs focused largely on the psychological and social aspects of medicine, only exposing students to limited aspects of family care (Kennell, 1961).

Unfortunately, there appears to be no broad theoretical framework that provides us with a basis for presenting and analyzing undergraduate primary care programs. There were a limited number of places where primary care could be taught, and most of the programs appear to have been shaped largely by the site of the program rather than by any major philosophical goal. For example, programs in outpatient departments in different hospitals had much more in common with each other than did programs within one institution located in different sites. Representative sites were the physician's office (which included preceptor programs), the patient's home in home care programs, occasionally the hospital's wards, and, most recently, model practices and health centers (Sheps, 1953; Faulkner, 1953; Harrell, 1968; Carnegie, 1970). Even when multiple sites were used, as in the comprehensive care programs, one site usually dominated and provided the program with its distinctive characteristics.

It is difficult to find any program that had as a specifically stated goal the teaching of primary care, as we have defined it. However, the primary care programs did seek to close the gap that existed between the social and the technical in medical education. Generally, the programs sought to foster what could best be called positive attitudes towards patients, families, and colleagues. Areas of program concern included the physician-patient relationship, teamwork, the appropriate use of consultants, and record keeping. Internal medicine, pediatrics, surgery, obstetrics, and psychiatry were the clinical disciplines in which these skills and attitudes could be taught. Psychosomatic problems and chronic illness provided clinical experiences where these skills were most needed and could be applied. The faculty included full-time and part-time staff, usually from the specialties; only rarely, did general practitioners participate as faculty.

The Physician's Office (Preceptorships)

■ One of the immediate results of the Flexner report was the disappearance of the proprietary school. Because the apprentice system was closely identified with the proprietary school and preceptorships are a form of apprenticeship, this form of education was quickly abandoned by most medical schools. The early method whereby a student apprenticed himself to the physician for a period of three years, then attended lectures for one year, and then returned for another period to his preceptor was seen as part of the proprietary school model. This period of seven years – often reduced to three years in the United States, particularly on the frontier actually exposed the student to the doctor-patient relationship before be began his medical lectures. Exposure to what we consider the central experience of medicine was a benefit poorly appreciated, lost in the switch to the Flexner system.

The limiting of the preceptorship also occurred in the United Kingdom. Here the apprenticing of

the student to the practitioner remained a part of the educational tradition but was of varying content and quality. The oldest preceptorship program was at Edinburgh. In 1776, the University began an association with the Edinburgh Royal Dispensary, which served the poor of the city and was staffed by general practitioners. When the National Health Service came into operation, the dispensary was converted into two national health general practices and the University established a department of general practice (Scott, 1950, 1956, 1960, 1967).

Preceptor schemes intended to introduce students to general practice were started at St. Mary's (Barber, 1952) in 1935 and Sheffield in 1951 (Hobson, 1952). In 1953, national surveys were completed by the College of General Practitioners and the British Medical Students' Association (Heslop, 1953; MacClean, 1961; British Medical Journal, 1953). Of the 23 schools studied, three had compulsory schemes. Generally, preceptorships were characterized by their site, such as health center or practices, attachment or residential schemes, and day visits. Other than the health center schemes, which were few in number, the difference between the others appeared to be the length of attachment, with most students spending a day in the day visit, a period of one or two weeks in the attachment schemes, and usually a month in the residential scheme. The length of preceptorship was important as several evaluations (Dean, 1971) suggested that the longer the student spent in the attachment the more positive he felt toward his experience.

At a national meeting of the British Medical Students' Association in 1965, it was unanimously agreed that general practice schemes of at least two weeks' duration should be compulsory for all students at all schools. Strong support was also given by students for the setting up of departments of general practice.

The Charing Cross preceptorship is a typical compulsory one. Fifth year students spend a period of one to two weeks with a selected practitioner (Arnold, 1964). The preceptorship at Aberdeen, which originated as a voluntary effort but is now compulsory, was similar, with students initially spending one week with a practitioner. Students now spend one day with the academic department of general practice, three days with the practitioner, and a final day discussing and presenting their findings at the conference organized by the department (Richardson, 1965).

Pearson's study (1968) in 1967 noted that all but one of the 26 British schools had preceptor programs. One-third of the preceptor schemes were compulsory and two-thirds were voluntary. Attachment was usually for two weeks and took place in the fifth or sixth year. In one-third, the students were briefed before the attachment. Only one school held a seminar. Reports from students were rarely called for and rarely discussed. The investigators concluded that medical schools were casual in their approach to the problem and that the existing schemes were "amateur, haphazard, and provided little or no feedback either to the medical school or to the student, and rarely to the practitioner."

By 1969 (Harris, 1969) all schools had some form of attachment and half of the 28 schools had compulsory schemes. About half reported some liaison between the preceptors and the school and required reports from their students; about half even paid their practitioners an honorarium. A pattern can be seen of increasing interest in preceptorships and increasing student demand for such experience.

Most of the studies evaluating the preceptorships in the United Kingdom have been based on opinion. Brotherston (1959), in his survey of Edinburgh graduates, noted that students had learned about unfamiliar common illnesses (common in the community but uncommon in the hospital) and the management of illness outside of the hospital; they had also acquired new attitudes towards general practice, which were almost always positive.

Other countries have made some use of the preceptorship where general practice is part of the established medical care system. These include Holland, Yugoslavia, and Israel. Mertens (1966) in Holland described a clerkship, which was an elective one-month attachment to a general practice. The course, which was subsequently lengthened to two months, was chosen by 75 percent of the students; 45 percent had elected to become or would be general practitioners.

Vuletic (1964) in Yugoslavia described a two-week attachment. Students were attached to practices in pairs and participated in seminars at the medical school where cases seen in practice were discussed. An ambitious study is now under way to test the effectiveness of this course, which will depend on a continuous analysis of the quality of work performed by the general practitioner, graduates, and faculty.

Prywes (1961) described a four-week program for final-year students at the Hadassah Medical School in Jerusalem. This course was the responsibility of the Department of Medical Education. Again, the evaluation of the program depended on questionnaires administered before and after the

course and dealt mainly with attitudes. Students described the course as particularly valuable for rural practices.

In the United States, the first preceptor schemes after the Flexner report made their appearances in California (Kerr, 1925) and Wisconsin (Bardeen, 1928). Kerr described his effort as "a unique and promising experiment" in which students spent two weeks with a general practitioner caring for private patients; he emphasized the importance of careful selection of the practitioner faculty. Bardeen established a program at Wisconsin simultaneously with the development of the new, four-year medical school. Generally, the preceptors were selected from among those considered the best practitioners and teachers (Parkin, 1959). The evaluation of the Wisconsin program (Bowers, 1957, 1960) showed that 13 percent of the graduates became general practitioners. Other programs followed, primarily in rural states such as Nebraska (Lee, 1966), Kansas (Wescoe, 1956), Vermont (Wolf, 1957) and South Dakota (Slaughter, 1949). Using the United Kingdom classification, most of these were residential schemes.

Perhaps one of the best described programs in the United States is the one at Kansas (Wescoe, 1956; Rising, 1962). To quote the investigators, this course of four and one-half weeks in the fourth year, "received the unqualified endorsement of students, faculty, and preceptors." The purpose of the compulsory program was to give the student rural practice experience. Practices were selected in towns of a size no larger than 2,500.

In addition to these attachment schemes, a number of medical schools in the United States and the United Kingdom offered elective periods enabling students to spend one to two-month periods in residence with general practitioners. In the United States, especially in rural practices, students seemingly are permitted more patient responsibility. In the United Kingdom, some resistance to students assuming responsibility has come from the general practitioner who is concerned about his own relationship to and responsibility for his patient. A recent study in the United Kingdom, however, indicated that only one out of twenty patients objected to having a medical student present or even provide services in the office of the general practitioner (Richardson, 1970).

The selection of faculty for these programs has also been of some concern. Parkin (1959), using criteria similar to Peterson's study of general practitioners, found that there were no unqualified practitioners among the Wisconsin preceptors and the students were exposed to good medical practice.

Summary

Until recently preceptorships have not been a major consideration, at least in terms of curriculum time in the United States. Preceptorships have been used widely in other countries. Both students (Rosenberg, 1959) and the general practitioner faculty (Kindschi, 1959) had high regard for these experiences. Often preceptor programs are poorly organized, although this may be the results of curriculum restrictions as much as by any inherent problem with the method. Full-time medical faculty have not made any major effort to improve the preceptorship experience, thereby often revealing their bias toward the hospital as not only the principal, but the only site for medical student education. Preceptorships, however, bring students in contact with physicians who are practicing varying degrees of primary care. The experience is particularly valuable, because, at least in the office setting, the patients represent a cross section of society rather than solely the disadvantaged, as will be subsequently noted, who are most often seen in hospital programs. This seems especially so in the rural as opposed to the urban setting.

The essence of the preceptorship is to watch a skilled and experienced clinician practice medicine and, in some programs, to participate in the care providing process. Watching an experienced professional can be valuable in any number of settings, and preceptorships should not be thought of only in terms of the practicing physician's office. For example, preceptorships could be developed in the hospital, where too often the student is given responsibility without the opportunity to observe or be observed by an experienced teacher. Although this experience appears to have a useful place in medical education, it has not yet been fully developed as an educational experience. Perhaps the lack of interest in the United States can be explained by the absence of a defined general practitioner service (Sweet, 1951), inasmuch as the preceptorship for the most part has been associated with general practice.

The Patient's Home

■ Home care programs, like the preceptorship, have a history that antedates the Flexner era and has been particularly developed in the United States. Most often these programs originated in the hospital and developed out of a concern to initiate followup for previously hospitalized patients. Only rarely were they developed to serve unhospitalized patients. Initially, they were a service for indigent families with no general practitioner who lived near

large institutions. The two oldest programs in the United States were started at Boston University (Bakst, 1950, 1957, 1959) and Tufts University (Olef, 1939; Gibson, 1965).

The Boston University program has been associated with the Home Medical Service that was established in 1776; Boston University began its participation in the program in 1874. The program provided fourth-year medical students with the opportunity to make home visits to families or patients who would call the service for emergency illness care. The student, who acted independently, would check with an available preceptor only if he felt there was a need. The supervision was provided by residents and faculty—internist, psychiatrist, and director. Most services were provided with the exception of obstetrics. The patients were indigent and lived near the hospital. The program was the responsibility of the Department of Medicine, but, since 1949, has been the responsibility of the Department of Preventive and Community Medicine. The course was described by the students as one of the most popular at the medical school; but no other evaluation was undertaken. It did not provide for continuity of care as the students could only see those patients who could be accommodated by the number of students and their supervising faculty participating on any given day. An elective opportunity was also offered in the home care program in which third-year students could follow one family for nine months. This part of the program, apparently short-lived, was not further described. A record system for the patients was maintained separate from the hospital record system.

Although the Tufts program is almost as old – the Boston Dispensary, where the program was based, originated in 1796, student teaching did not begin until 1929. The program, administered by the Department of Medicine, also involved indigent patients. Students were assigned in their fourth year for a one-month rotation. The students made house calls with district physicians and residents of the Boston Dispensary. One of the very few controlled studies to examine the effectiveness of house calls was carried out in this program by Gibson and Kramer (1965). They found that the home as a site of care resulted in additional medical diagnoses being made compared with the office setting. A similar program developed at Georgia (Sydenstricker, 1939) with indigents for patients and hospital residents for faculty.

Home visits to selected outpatients were made in a number of medical schools (Hiscock, 1939; Robinson, 1939; Weiskotten, 1944; Neiderman, 1958). Usually organized by departments of preventive medicine, these programs made use of the case study method, which involved the study of an individual case in great detail. Occasionally, a home visit was made to a hospitalized or previously hospitalized patient (Baily, 1937).

At the Medical College of Virginia (Holmes, 1953), a program was developed in coordination with the Richmond Health Department. Fourth-year students made home visits during a three-week clerkship in medicine. The faculty were primarily residents in pediatrics and medicine. At Syracuse, students made home visits to hospitalized patients and followup visits one year later (Weiskotten, 1944). The purpose of the program was to make students appreciate the role of time, which often solved problems that, in the short run, appeared to have no ready solution. Unfortunately, there is no quantitative or qualitative information as to how successful this followup program was.

A home care program at Johns Hopkins was initiated after a study showed adverse social conditions existed for 65 percent of an unselected series of patients admitted to the hospital (Robinson, 1939). These conditions contributed directly to the need for admission, and the program was designed to prevent future hospitalization by focusing professional attention on adverse problems in the home.

Shrand (1966) described a home care service in central London where children, who would otherwise have been hospitalized, were cared for in their homes by a team from the teaching hospital. There was little undergraduate teaching in this course, although the potential for this was considered excellent by the investigator. Students could make home visits and occasionally were accompanied by the registrar assigned to the program.

Some programs combined features of preceptorship and home care. At Vanderbilt (Melaney, 1934, 1949), volunteer fourth-year students were assigned to a practicing physician preceptor who took the student on house calls and introduced him to patient care in private practice. There were case studies of hospitalized patients whose homes were investigated either by the student himself or by the medical social worker. At Tennessee (Packer, 1954), the family of a patient examined by the third-year student in the outpatient department became his total responsibility; and, thus, the student became the family physician. General practitioners, who constituted the staff of the general practice clinic, served as preceptors for both the intramural and extramural aspects of the program.

Summary

In general, the home care programs dealt with episodes of illness rather than continuity of care. The faculty was hospital based and too often still in training and inexperienced with respect to care outside of the hospital. In almost all of the programs, the patients were indigent and often elderly. The programs may have demonstrated to students the value of going into the patients' home; but, again, there was no measurable impact on the careers of physicians and no evidence that students benefited from the experience. This experience might also have produced a negative impact; insofar as many physicians now practice as if home care, or more specifically, the need for a house call, is totally unimportant. As a site of health care, the home is obviously important both for episodes of illness and for continuing care. Like the preceptorship, it belongs in any substantial program of primary care – an integral part of an overall program and not merely an isolated activity.

The Hospital's Outpatient Department

■ The outpatient department is the part of the hospital said to closely resemble a primary care setting. It was developed as a consultative or secondary care clinic also serving an emergency care function. It usually provided only that part of primary care considered first contact. Moreover, the outpatient department, especially in large urban hospitals, had become the place where increasing numbers of indigent families sought care, especially as general practitioners became increasingly unavailable.

Programs in primary care in the outpatient department were among the easiest to establish due to the availability of patients and the existence of outpatient departments in most hospitals. Because large numbers of ambulatory patients were indigent, meeting their needs did not put the institution directly in competition with private practitioners. The hospital was also assured that patients would occupy its inpatient beds. Fragmentation of services was recognized by the staff in the outpatient department; consequently, many of the early programs they developed attempted to provide better services to patients whose primary needs were lost in specialty oriented clinics.

For these reasons the outpatient department was a logical place to begin programs identified with general or integrated care. Integration generally meant reorganizing the outpatient department to put emphasis on total patient needs rather than on a disease, as had been the case in the specialty clinics. However, these programs were essentially small demonstration efforts and did little to change actual delivery of hospital ambulatory services. The outpatient department at Vanderbilt was organized with this goal in mind in the 1930's (Burwell, 1935); this was followed by integrated programs at Syracuse (Weiskotten, 1944) and at Cornell (Barr, 1953). After the Second World War, outpatient integrated programs were described at a number of schools: Washington University of St. Louis (Shank, 1956), Pittsburg (Gregg, 1956), North Carolina (White, 1957; Fleming, 1956), Buffalo (Bunnell, 1951), Yale (Solnit, 1954), Duke (Bogdonoff, 1963), Cornell (Reader, 1956), Colorado (Kern, 1956) and Northwestern (Snyder, 1959).

The program at North Carolina evolved from a reorganized outpatient department, which was part of the expansion of the medical school from a two- to a four-year school (Fleming, 1956; White, 1959). As a general medical clinic, it combined many of the specialty clinics with hospital specialists as the faculty. Fourth-year students spent approximately half of that year working in this clinic. The setting was especially fertile for studying referral patterns to the outpatient department (White, 1959). But there is no indication of its success or failure in educating practicing physicians for the State, even though the school had as a stated goal the education of practicing physicians.

In pediatric teaching, the outpatient department assumed considerable importance. At Yale (Solnit, 1954), fourth-year students, during a six-week clerkship, gained coordinated pediatric-psychiatric experience that stressed interviewing skills. This teaching was also part of a program for interns and residents.

A general medical clinic, in which six clinics had been combined, was also developed for teaching at Buffalo. The course, described as successful, received no further evaluation (Bunnell, 1957).

Another early innovation was the reorganization of the Vanderbilt Clinic at Columbia Presbyterian to allow students to see patients of private referral physicians (Cadmus, 1948). This was one of the few attempts to have private patients participate in the outpatient setting in student teaching, but it involved consultative services and not primary care patients.

At Oklahoma, the reorganization of the outpatient department was accomplished as a demonstration of liaison between the University Medical Center and the referring physician with a secondary goal of increasing senior faculty participation

in the ambulatory area (Colmore, 1954). There was no reported evaluation to indicate whether or not senior faculty did become involved in the outpatient as opposed to inpatient care.

Summary

In summary, almost all of the outpatient department programs attempting to improve teaching were faced initially with the need to reorganize the outpatient department. They did not have an expressed goal of producing primary care practitioners. The student, resident, or undergraduate was attracted to the outpatient department, because he could assume almost complete responsibility for a new patient; whereas on the inpatient service, he always shared responsibility for the patient. While working in the outpatient department, the student might recognize the seriously ill patient; but the experience did not help him to manage the patient without significant organic disease. Moreover, the student might not be providing high-quality care. In auditing charts of students, Baumont (1967) found that of 250 records audited 39 percent failed to meet the criteria of quality used in that study. The most obvious omission was inadequate communication with the referring physician. Also, little attention was accorded the penalty paid by the families and patients who, instead of a physician, saw a less-experienced student in the outpatient department.

Outpatient programs began to deliver more primary care in the post-World War II period. This was particularly true in urban emergency clinics, because fewer sources of primary care existed in the community. The situation created major problems, inasmuch as the outpatient department, as a setting, shares the overwhelming constraints of a hospital; namely, its organizational relationships and high costs.

For example, Bogdonoff (1963) noted the administrative hurdles that faced any outpatient department to reorganize to achieve a more comprehensive program. These included emphasis on specialties, the hospital bureaucracy, the deemphasis of the total patient, and the difficulty in coordinating services. He concluded that, even in the best of circumstances, care of patients in the outpatient department was a difficult task and that mixing educational, research, and service goals only complicated the situation.

Any program in an outpatient department suffered due to its inability to alter in a major way its relationship with the hospital. Neither did changes in the organization of the outpatient department facilitate the treatment of common disorders, because the relationship between physician and patient was disease-and crisis-oriented, discontinuous, and noncomprehensive. The faculty remained primarily specialists and subspecialists, and the influence of specialty organization geared to finding disease was overwhelming. Despite the expressed interest in the outpatient department, it was the less experienced physician who continued to work in the outpatient department and the senior staff who taught on the wards. A totally different picture existed in Great Britain where the outpatient unit remained a secondary and consultative clinic and was staffed by a consultant or his well-trained registrar.

Perhaps most important, the outpatient department is part of a two-class health care system usually providing care to patients whose morbidity and mortality are among the highest in our society. Locating educational programs in this setting means that students would deal almost exclusively with a disadvantaged population as they did in home care programs.

Thus, an important criticism of outpatient department programs remains its inappropriateness for primary medical care. Outpatient departments were properly designed for the referral patient, either for special consultation or for a genuine emergency, but not for that important part of primary care that involves health maintenance, health education, and treatment of the family as a unit.

Health Advisors

■ One attempt to introduce students to medical care outside of the hospital while developing a relationship with patients was to have the student act as a health advisor – rather than as a physician – to patients and families in a number of sites, such as in the patient's home, the outpatient department, and the hospital. Most, but not all, of these programs were offered in the preclinical years. At Long Island College of Medicine (now State University of New York at Brooklyn) shortly before World War II, cases were assigned to medical students in the third year and discussed one year later (Curran, 1945). There was no followup as to the effectiveness of this program.

At Cornell, a plan was developed for third-year medical students to follow a family for two years through frequent house visits. This program was called the Family Health Advisor Project and was first offered to third-year students who followed their assigned families for 15 months. World War II interrupted the project, [illegible] it was reestablished after the war (Berle, 1953).

A similar program at Western Reserve was an ly precursor of the extensive curriculum revision at occurred in that institution after the war ennell, 1961). An entering student was introced as a health advisor to a family – often the nily was disadvantaged and black; and the wife egnant. Through periodic health and home visits, e student was to follow the family through his ur years of medical school.

At Vanderbilt (Quinn, 1960), the student, acting a health advisor during his first two years at edical school, served primarily as a liaison beeen his assigned families and their source of hostal care. A smiilar program was developed at uisville as an elective (Miller, 1961).

Perhaps the best reported example of the Family ealth Advisor system was that developed at nnyslvania in 1949 (Appel, 1953; Hubbard, 952; Hubbard, 1954; McMitchell, 1952). In his st year of school, the student became the health lvisor to a family. Families representing all ecomic strata were especially selected for the proam by the program social worker. The student sited his families regularly and discussed his exeriences at preventive medicine seminars. He was pported by an interdepartmental staff consisting two clinicians, one psychiatrist, and a social orker. Although described as successful in 1952 d expanded, the program was not further reorted on or evaluated.

Parmalee (1960) developed a similar program at CLA in a well-baby clinic. In the first year of edical school, students made home visits to a osen family; in the second year, a second family as added. In the third year, the program included monthly seminar as well as visits to an additional mily in which the mother was pregnant. The proam occupied a total of 116 hours through the ur years of medical school, documenting just ow little curriculum time was devoted to family re teaching.

A more contemporary attempt at family advisor rograms has been accomplished by students themlves in health advocacy programs (Rogatz, 1971, cGarvey, 1968). Students reached out to a dislvantaged family and advise to them how to get edical care. They screen populations to work to tablish care facilities. They also may have as their al the establishment of courses in their own medal school. Often the students are overwhelmed by e complex needs of the families and the comunities. But, on the plus side, student initiative re can have very tangible results, such as the tablishment of clinics and neighborhood health nters (Johnson, 1969).

Summary

The family advisor programs were generally described as successful in the preclinical years, most probably as a result of the patient contact they offered students. However, there was no extensively planned evaluation of these programs. In the clinical years, the dominant hospital culture again took over; and these programs suffered by comparison with the drama of ward medicine (Kennell, 1961). Where most successful, the program provided students some degree of responsibility, which was subsequently enlarged upon in the comprehensive and family care programs.

Comprehensive Care

■ Following upon the Family Health Advisor programs, the efforts in psychiatry, preventive medicine, medicine and pediatrics came together in programs of comprehensive care. Generally these programs, although differing in title, shared a patient-oriented rather than a disease-oriented approach. These efforts, unlike the earlier programs, were largely experimental and substantially financed by private foundations, particularly by the Commonwealth, Rockefeller, and Kellogg Foundations. An important innovation of these programs was the introduction of the behavioral scientist, such as the medical sociologist, to clinical medicine departments (Weiner, 1961).

Representative programs were developed at Temple (Steiger, 1956, 1957, 1960), Colorado (Hammond, 1959) and Cornell (Reader, 1953, 1956, 1959, 1964). Additional programs were undertaken at a number of schools on a smaller scale (Peterson, 1959; Weinstein, 1956; Johnson, 1959). All of these schools had undertaken earlier educational efforts to create a climate for these changes. All had strong leadership and, in each school, sympathetic and understanding administrative support (Magraw, 1971).

The program at Temple began in 1952 as a weekly conference for senior medical students during a one-month clerkship in the general medical clinic under the collaborative direction of an internist and a psychiatrist (Steiger, 1957; Neibuhr, 1960). Teaching was given in 16 hours of conference during the clerkship. Lecturers, seminars, and clinics were added for first-, second-, and third-year students with a six-week clerkship in the medical clinic for fourth-year students. Third-year students also followed a patient with a chronic disease for one year. Later this was replaced by student supervision of the health care of a family. Although

ere were no fundamental changes in the curricu-
n, the program gave fourth-year students inten-
e outpatient clinic experience. The primary
jective of Temple was stated to be the education
broadly oriented generalists (Lee, 1962). How-
er, there is no record of success or failure in
ieving this goal.

In 1953, the University of Colorado initiated a
neral Medical Clinic for teaching comprehensive
dical care at the Denver General Hospital. Com-
hensive care in this program meant that the
ysician assumed total responsibility for his pa-
nt's health care. The investigators felt that the
cess of comprehensive care was related primar-
to an attitude rather than a skill. The purpose
the General Medical Clinic was to provide an
portunity for the medical student to learn at
st as much about fundamental medical skills as
the classically organized medical clinics; to pro-
e him with additional knowledge, particularly in
areas of sociology and psychology; and to pro-
e a setting in which the attitudes leading to the
ctice of comprehensive medical care would be
veloped and maintained.

The curriculum of the General Medical Clinic
s covered in a six-month block period in the
rth medical school year. The student spent five
e-half days a week for eighteen weeks and two
e-half days a week for six weeks in the clinic.
e remainder of his time was spent outside of the
neral Medical Clinic in medical, pediatric, and
stetrical services. In addition, the student in the
neral Medical Clinic was assigned to traditional
cialty clinics at Colorado General Hospital for
o one-half days a week. The other two one-half
ys a week provided a modified clinical experi-
ce on the medical wards at Denver General Hos-
al. Here, the student followed his clinic patients
ough their hospitalization. The program pro-
ed: continuity of student-patient relations for as
g as six months, supervision by a team, en-
nced sense of responsibility for patients, and fre-
ently opportunity to deal with family groups as
ients.

A family and home care program gave each stu-
nt an opportunity to follow a family during his
ining in the General Medical Clinic. He also ac-
red similar experience with pediatric and obstet-
l patients, attended comprehensive care confer-
es, and participated in a preceptor program. He
o attended weekly seminars and participated in
conferences in psychosomatic medicine.

Comprehensive care conferences were held every
er week; and, at this time, the fundamental
losophy of the General Medical Clinic was
discussed. Towards the end of the experiment, these conferences were curtailed, and there was an associated lack of interest by students and faculty in the family and home care program. There was also a decrease in emphasis on the preceptor program.

The Colorado program was an experiment with a classical research design. Each of three classes (1954-1956) was divided into control and experimental groups, the former assigned to Colorado General Hospital and the latter to Denver General Hospital. The overall effect of the program was that it mitigated increasingly negative attitudes toward comprehensive care observed previously, without impairing the acquisition of traditional medical knowledge and skill.

From data on hand, it is apparent that the General Medical Clinic was more successful in achieving its goals in the first half of the senior year than in the second. There were several explanations offerred for this observation. First, the student considered the learning of traditional organic medicine much more important than learning comprehensive care. Second, he believed that his General Medical Clinic program presented inadequate opportunities for learning traditional medicine. Third, anxiety associated with the learning of traditional medicine increased as graduation and internship approached. Although the students believed that the General Medical Clinic hampered their learning of medical knowledge and skill, the data showed that it did not. For all of the stated reasons, the investigators concluded that the fourth year of medical school was too late in the curriculum to introduce comprehensive care, because the students had already largely adopted the dominant culture of hospital medicine. The research conclusion was that both the students and faculty believed that comprehensive care was an attitude and not a skill. The students resented being taught comprehensive care by faculty who they believed had no special skills in this area.

Despite their commitment to the comprehensive care program, the faculty was almost obsessed in trying to establish an organic diagnosis. They were frustrated and hostile toward patients for whom no such organic diagnosis could be made or for those who seemingly were not sufficiently motivated to get well. In the comprehensive care setting these feelings, while conspicuous and temporary, did interfere with teaching. It was concluded that although faculty did not need advanced training in preventive medicine and public health, it did require basic concepts in psychosomatic medicine. They needed to know sociological principles in

addition to being well prepared as clinicians. Part-time specialists did not work as effectively in the clinic as full-time faculty. Also, due to the excessive emphasis on teaching, the part-time faculty felt that its time was not efficiently utilized. It was also concluded that a program devoted to teaching comprehensive care would be most effective if patients from a wide variety of social backgrounds were included rather than the totally disadvantaged.

Despite the widespread support of the University and the administration, whenever day-to-day problems arose that put the program in conflict with traditional specialty and inpatient services, decisions usually favored the more traditional view. Also, a fundamental conflict existed in the Denver General Hospital where the administrative goal was to see patients, rather than to devote the time to teaching that the General Medical Clinic effort required. It is not surpirising, therefore, that the General Medical Clinic was eliminated in 1961 (Snoke, 1965).

Another important experiment was carried out at Cornell beginning in 1952 (Reader, 1964). The comprehensive care and teaching program was a logical development of the programs of family health advisor, home care, and pediatric outpatient department initiated at Cornell before and during World War II (Barr, 1946). The goal of the program in terms of patient care was to provide continuity to ambulatory patients. For students, the goal was to learn about comprehensive care. Using a before-and-after design, the research goal was to measure changes in attitude and values as well as the ability of the medical students to use psychological and sociological methods.

For six months in the fourth year of medical school, students participated in the continuity care program. This involved the general medical clinic, the pediatric clinic, the psychiatric outpatient department, the home care, and family care programs. At any one time, one-half of the class participated in the continuity program. Precepting was done by the appropriate specialist. A number of innovative teaching techniques were developed using tape recordings, one-way-screen interviewing, and small-group seminars.

Criteria for selecting families in the program included the following characteristics: a member had an illness that required continuing medical supervision; young children; location close enough for members to receive home care; and freedom from overwhelming, complex, social problems.

A high percentage of students, particularly those whose families had no member with organic disease, were dissatisfied in the role of family physician; because it offered them a meaningless experience. Students satisfied in the role of the family physician were those engaged in traditional medical activity; i.e., with patients with organic illness. The students were also satisfied if the families accepted the students as their physicians. This is an important point; because the data indicated that, if the student felt involved as the family physician, it was likely that his attitude would change. The family care program was discontinued in 1959, in part, because families could not be found who met the stated criteria and, probably, because the students expressed excessive frustration in dealing with "well" families. The home care program, which had more disease content (Sonkin, 1960), was found more satisfying to the students; it continued as part of the program.

A major conclusion was that the comprehensive care clinic students needed to work for at least a four-month period and preferably for six months to experience any sense of continuity. Like the students at Colorado, the Cornell students were concerned that they were not learning the facts of medicine, even though the research findings indicated otherwise. For example, there was no change in national board scores in those classes that participated in the program compared with the two preceding classes that did not participate in this experiment.

The administrative structure, educational organization, and physical size of the medical center presented formidable obstacles to comprehensive care (Magraw, 1971). For example, when comprehensive care or related programs are established, it is very difficult to find appropriate physical quarters for them; because they must compete with established programs for finite resources. The hospital was not only physically incompatible, but it also presented an intellectually hostile or at least unaccepting environment. After four years of operation, 35 percent of the faculty at Cornell did not know that the program existed (Caplovitz, 1967). Over one-third of those who did know of the program had reservations about it. In fact, only one of five of the faculty believed that the medical school should educate more general physicians. Faculty in the specialties of psychiatry, public health, preventive medicine, and medicine were most in favor of the program. Only 40 percent of the full professors endorsed the program, and professors and residents generally shared a negative view of the program. Caplovitz pointed out that if comprehensive care programs were perceived as producers of general physicians and if this was

equated by the faculty with general practice, then opposition to the program would increase even more. In 1967, the program was reduced from the original 22-week schedule to 15 weeks and the program ceased entirely in the late 1960's.

Summary

These were ambitious programs with elements of success and failure. They succeeded as experiments in medical education but failed, because the majority of the faculty never viewed them as more than experiments, well insulated from the main work of hospital medicine.

Additional valuable findings emerged from these studies. Given the climate of the medical school and the teaching hospital, there was a minimum of time needed for the programs to accomplish even minimal goals; and this period appeared usually to be six months. The fourth year of medical school was not the best time to introduce the programs; because by that time, senior students had adopted the dominant hospital culture and preferred patients with organic disease.

Both Colorado and Cornell had family care programs as part of their overall comprehensive care programs; and at both institutions problems were experienced with the family care programs due to administrative conflicts and student frustration. Because family care was only a part of the comprehensive care effort, the family care aspects were readily expendable. There were, however, a group of programs that made family care their major thrust; and it is these programs that we will now examine.

Family Care

■ Family Care Programs were located sometimes outside of hospitals, generally in a special setting. The majority, however, even though committed to meeting needs outside of the hospital, were forced due to financial and physical needs to locate within the hospital complex, usually in the outpatient department.

Representative programs were established at Vermont (Haynes, 1960), Louisville (Eller, 1957), Harvard (Haggerty, 1962; Stokes, 1963), Yale (Beloff, 1967, 1968), and Western Reserve (Kennell, 1961).

A Family Care Program was started in Vermont in 1959 (Haynes, 1960). Faculty consisted of general practitioners, public health nurses, and social workers. Third-and fourth-year students provided care as family physicians to at least two indigent families for two years. Seminars were held twice weekly. Directed by the Department of Preventive Medicine, the program had an office facility separate from the hospital.

Two programs were launched at Harvard; one, at the Massachusetts General Hospital; the other, at the Children's Hospital Medical Center. The program at the Massachusetts General Hospital was established for a five-year period beginning in 1955. Each student was assigned one or two families for whom he provided care during his third year. An attempt was made to follow patients in the fourth year, but the experience was unsatisfactory and consequently terminated due to curriculum conflicts. The curriculum was not changed, and students cared for selected families in their free time. Only one event took precedence over medical school scheduled activities and that was the onset of labor in pregnant patients, because the student was expected to be present and to participate in the delivery. Students actually rendered a small amount of service, which averaged 20 percent of the total services offered to the participating families. Faculty were hospital-based internists and pediatricians, and the program office was located in the hospital outpatient department.

From 1957 to 1959, third-year students were assigned at random to the program. Approximately 20 students from each of the three classes were selected, with the remainder of each class as a control. Students were compared with their controls on such indicators as grades, class standing, National Board scores, attitudes as measured by questionnaires, and history taking. At the end of three years, it was not possible by these measures to demonstrate any differences between experimental and control students. Consequently, the program at the Massachusetts General Hospital was terminated in 1960.

The program at the Children's Hospital Medical Center was started in 1956 with objectives similar to the Massachusetts General Hospital program. It was a more complex organization, because care for a family required the services of three hospitals – The Peter Bent Brigham Hospital, Children's Hospital Medical Center, and Boston Hospital for Women – as well as the usual team of specialty preceptors (Haggerty, 1962). Finding faculty with appropriate skills to teach family care was a major problem at that time, because there were no family practitioners on the faculty. The program had its own building, separate from, but in close proximity to the associated teaching hospitals.

The program gave third-year medical students an opportunity to work as family physicians in a team relationship with a nurse and social worker. Students were on call at all times through an answering service backed up by preceptors – primarily pediatricians and internists plus consultant psychiatrists and obstetricians. In addition, they

attended a weekly seminar. Due to several curriculum changes at Harvard, the course was moved from the third to the fourth year and, most recently, is being offered in both the third and fourth years. Students participated originally for a minimum of nine months and currently participate for twenty months. Family physicians joined the faculty in 1967 (Alpert, 1970).

Students were called to deliver necessary services during other scheduled class activities; and, eventually, a program was developed that had many of the characteristics of a group practice. By the late 1960's students were involved in 90 percent of the medical services to their assigned families. Some 30 students or 25 percent of each class participated in the later years.

In an attempt to offer medical students experience with families of a broader social and economic spectrum, families from Boston area undergraduate colleges were included. Families with small children and pregnant women were also selected on the basis of observations at Cornell and Colorado that suggested students needed some actual practice to get the experience of being a family physician. Like the Cornell program, it became increasingly difficult to recruit families who met the program's requirements; and, thus, screening was eventually abandoned.

In 1971, a survey of all students who had participated in the Children's and Massachusetts General programs, together with their classmate controls, was completed. Because in the period, 1957 to 1960, the students had been assigned at random, this presented an opportunity to measure the possible long-range impact of the program. No major differences were noted, although 24 percent of the control students had taken surgical training, compared with 18 percent of the family health students. Otherwise, there was no apparent difference in present practice patterns. Only one student in the total sample identified himself as being in family practice. Students who had been volunteers in the Children's programs for 1961-1965 were more likely to pursue pediatric careers than were their classmates, and the 1966 to 1970 cohort contained a small number of students who were considering careers in family medicine. Thus in recent years, the program has given evidence of attracting students interested in primary care careers.

Following an extensive review of family and comprehensive care programs, Beloff and Weinerman (1967) established a Family Care Program at Yale, which contained many features of the preceding efforts. Third-year medical students worked as physician members of the health team, and the program was based in the outpatient department. An early descriptive analysis noted the development of a family record system and the general popularity of the course with the participating students. The program was terminated in 1971 despite its reported successes due to minimal institutional support.

At Western Reserve, a Family Care Program was established that offered students experience in all four years of the curriculum (Kennell, 1961). The program was part of an extensive revision of the total curriculum (Wearn, 1956; Caughey, 1956; Caughey, 1959; Adams, 1958; Ham, 1962). The student began as a health advisor in his first year and was a student physician in his clinical year. Initially compulsory for all four years, the Family Care Program became an elective for the last two years of medical school. It had the advantages of a continuity clinic and an integrated outpatient department program. In the clinical year, the psychiatry and pediatrics departments provided considerable input into the student's training. (Adams, 1958).

From our view, the Western Reserve curriculum was especially significant; because students saw patients early in their careers, medical education was patient oriented and involved patients with chronic diseases, and students had close and continuing contact with their preceptors. In addition, the program carefully integrated seminars and clinical work.

The major goal of the Western Reserve experience was to develop a curriculum that stressed interdepartmental teaching. Achieving this goal did not change faculty attitudes toward primary care. The one published survey of faculty at Western Reserve suggests that in its beginnings the faculty supported change due to the belief that change meant better education (Horowitz, 1960). Of all the curriculum changes, the Family Care Program and continuity clinic were least well accepted by the faculty. The faculty, although initially committed to the important goal of education reform, never defined their curriculum goals in terms of subsequent career choice of their graduates. Because there never was a goal for recruiting students to primary care, Western Reserve graduates very likely pursued careers no different from careers at other medical schools, despite this very important and major education experiment.

New schools have recently turned their attention to the family care model in the teaching of family medicine (Harrell, 1968; Walker, 1966). (Also see graduate education, page 143.) As a major activity, it is too soon to evaluate the impact of these

programs. The development of an undergraduate generalist track has also been suggested (Pellegrino, 1966), but it has yet to be generally implemented.

Summary

In general, family care programs like comprehensive care programs have been part of the medical school curriculum not as a result of a commitment to primary care, but because the programs were experiments in medical education. The majority of the faculty was unwilling to see the programs as representing any major commitment on the part of the medical school. Often the participating student would find himself in a position of conflict between his family care activity and his scheduled, usual medical course. Where the students volunteered, this conflict was not a major factor; but where students were assigned – usually for experimental purposes, there were major antagonisms and resistance.

There also were students whose experience left them impressed with the negative aspects of primary care, a view reinforced by the majority of the faculty. Certainly the programs at least in their early years, did not influence students to select primary care careers. But, the programs did teach continuity and focused on first contact outside of the hospital. Moreover, the student family physician was placed in the position of providing health as well as illness care for a family.

Only within recent years and in a few programs have family physicians and other primary care providers been part of the faculty. Consequently, most programs did not provide students with a bona fide model of a primary care practitioner. Moreover, providing family care required longitudinal rather than block experience; and even in an elective curriculum, the student would continue in a position of conflict. However, these programs did emphasize the importance of the family as the unit of health care and came the closest of any programs in emphasizing the important contribution that can be made by the primary care physician.

Model Practices

■ Changes presently taking place in our health care system offer a number of newer sites where educational models for primary care can be developed. For example, one of the requirements of the newly created Board of Family Medicine calls for a model practice if there is to be an accredited residency program. Once again, these model practices are being located most often in the hospital outpatient department, although some have developed in a special facility outside of the hospital.

Some of the newer settings are group practices in hospitals, multispecialty group practices, community hospitals, and, increasingly, some form of neighborhood health center (Kark, 1957). Some may be associated with prepaid insurance plans currently developed at a number of medical schools (Ebert, 1967). One of the issues to be resolved in developing programs in neighborhood health centers is the need for community approval of student participation, either as undergraduates or residents. In general, most community programs in the United States resist student physicians due to reactions to past impersonal experiences in teaching hospitals that many feel represented a significant degree of exploitation. In some communities the students themselves have organized a program (Record, 1969; Waserman, 1971), but these efforts are generally limited to the students organizing the clinic rather than ulitmately giving care.

To this date, very few of the health center settings have been available for education for primary care. However, some centers are accepting resident physicians who are deemed suitable by the responsible community board. Conversely, most private group practices resist having students due to the very real expense involved in their education. In this setting particularly, plans to give students graded responsibilities as in hospitals have not been fully developed.

Perhaps it was Edinburgh (Scott, 1967) that pioneered in the establishment of a model academic practice. Here students spent block periods observing physicians in a university practice but did not themselves care for patients. Additional undergraduate university programs in family medicine are now underway at Oklahoma (Lienke, 1970), Rochester (Haller, 1969), Hershey (Harrell, 1968) and Miami (Carmichael, 1965). Lienke (1970) has described a group of family physicians working in a university medical center. A group practice of family physicians has been developed at Hershey (Harrell, 1968). Prepaid group practices at Harvard, Yale, and Johns Hopkins may eventually be used for education but, initially at least, the operational emphasis has been on organization and finances. Early experiences show that even model practices develop many problems, as demands for service continually compromise the professional time available for education. Obtaining experienced faculty in all of these programs has been a major problem.

Summary

Through its model practice, a department of primary care, family medicine, or general practice may be the proper vehicle for coordination of pri-

mary care education in a medical school. (Medalie, 1969). However, unless a medical school accepts the goal of producing primary care practitioners, these departments are likely to be overwhelmed by the stronger and more traditional departments.

Formal Course Work

■ The classroom is yet another site for the teaching of primary care The course could be located in the basic science department of a medical school, a conference room in the hospital outpatient department, or on an inpatient ward. But each of these settings call for didactic, rather than practical or applied instruction.

Numerous attempts have been made to introduce formal classroom teaching to primary medicine. This teaching was particularly easy in the preclinical years because it did not require actual patient responsibility on the part of the student. Courses were often taught by departments of psychiatry and preventive medicine (Aldrich, 1953; Conwell, 1957; Engel, 1957; Fox, 1951; Guze, 1953; Greenhill, 1950; Spradlin, 1967). However, as previously stated, the psychiatric efforts were, primarily, developmentally or psychoanalytically (Saslow, 1948) rather than socially oriented; and the preventive medicine courses were socially or community and not clinically oriented (Antonovsky, 1966; Wegman, 1969).

Many of the seminars were held on the inpatient service. One of the earliest programs was that given at the Beth Israel Hospital in Boston (Derow, 1933; Cohen, 1935; Cohen, 1941). Beginning in 1929 weekly medical social-work rounds included hospitalized patients as well as outpatients. Students participated in their third year during their medical rotation in the outpatient department and in the fourth year as ward clinical clerks. Although early graduates participated in the programs with enthusiasm, the program social worker stated that she was never fully utilized. Many of the programs were labelled as multidisciplinary efforts (Bakst, 1957; Bates, 1965). At Washington University of St. Louis, an interdepartmental program involving medicine and public health was developed. Students studied cases during medical clerkship and reported on these cases at seminars, which were held during preventive medicine. Home visits were also included in the program (Shank, 1956).

At the Medical College of Virginia, a first-year course was offered covering patients' physical environment, interviewing, evolution, genetics, growth and development, history of medicine, physical examination, epidemiology, and behavior. The course, which included a general practitioner and other clinicians on its supervising committee, occupied 300 hours over a 42-week period in the first year (Arington, 1964).

In the 1970's, teaching of social and environmental factors in medicine were extensions of basic clinical instruction, including ward round teaching, home visits, case conferences, clinical discussion, and expanded history taking. There were also formally organized case-study projects sponsored by one or more departments. A typical plan would include a home visit on a hospitalized patient, study by a team, and presentation by the student at a seminar (Griffith, 1971). In general, these methods proved popular when the seminar leader, lecturers, and social workers were able, dynamic, and sensitive to the needs of the involved students.

Some efforts have been made to evaluate the short-run results of these programs. In a clinical course offered to first-year students, the percentage of those who believed psychosocial factors could be a cause of illness increased from 45 percent to 72 percent (Bruhn, 1969). Lewis (1965) studied a random sample of first-year students who participated in a series of seminars dealing with home care. The participating students did better on the study measures than did their controls. In another study of a short-term, comprehensive care seminar course for fourth-year students, there was actually little difference between experimental students and their controls; what little differences there were suggested a less positive view taken by the experimental students toward clinical hospital medicine. (Shaffer, 1965). These studies did not follow students long enough to assess the possible long-term impact. Engel (1971) suggests that efforts directed at first-year students might be harmful to long-term professional growth, inasmuch as these students have not been prepared for early patient contact. Moreover, in the clinical years, the interested student was exposed to a house staff who found these "social" efforts interfering in the "real work" of the ward. Preclinical students, on the other hand, not involved in the work of the ward, would participate eagerly in these courses; because, to them, it represented real contact – the closest that they had – with patients. However, these courses could not compete with the drama of the hospitalized patient and his "organic" disease. When organic disease was successfully treated, the results were dramatic and almost always influenced the patient's episode of illness. Broader issues in the primary care sphere require time for their alteration, or resolution, as well as for coping mechanisms to change. The student and resident did not see this. What they did see was that these complex social and behavioral problems could not be resolved at case conferences. The values of the dominant culture predominated to the extent that the student attempted to avoid rather than to participate in these conferences.

In our judgment, attempts to introduce discussion of social and family factors in illness failed when they were made special and separate exercises.

Summary

Conflict between the goals of the primary care program and the goals of hospital medicine apparently is a repetitive theme. The theme expresses itself in a number of ways. The preclinical student who has participated with some enthusiasm in the preclinical primary care program arrives on the ward where he comes face to face with hospital medicine. The clinical student finds himself in disagreement with his intern when his primary care or "whole patient" responsibility conflicts with ward duties that are primarily disease-oriented. Conflict is also seen when the faculty member on a ward joins the resident in belittling the referring physician. Not only are there no faculty members who present the student with satisfactory primary care models, but also there are very few residents who offer models of the resident in training. Thus, the student identifies with his intern and resident, and his primary care interest diminishes by the overwhelming demands of hospital medicine. To avoid these conflicts, the student needs models not only of the practicing primary care physician, but also of residents who are preparing for a career in primary care.

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SECTION IV

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V. Graduate Education Programs

Internship and residency training for primary care has struggled with two main problems: the inadequate overall coordination and direction that has hindered all graduate medical education, and the graduate programs that were intended originally to train for specialty practice rather than for general medicine.

Millis and others have elucidated the first of these problems (Millis, 1966, 1969; Kinney, 1972). Even though graduate training of the physician now constitutes the longest portion of his education, there has been no single professional or public body with overall responsibility for establishing standards or allocating priorities for residency training (McKittrick, 1967). The university, which has accepted this responsibility at the medical school level, has not acknowledged its role in graduate education to the same degree. Moreover, "graduate education is unique among fields of graduate and professional education in being a responsibility of institutions which have service rather than education as their primary function. . . responsibility is divided among more than a thousand hospitals instead of among a few score universities or medical schools. It is in a class by itself in the extent to which responsibility reposes in individuals rather than in faculties" (Millis, 1966). Of particular relevance to primary care, this service obligation has been rendered to hospitalized rather than to community-based patients.

The second problem is more critical in regard to primary medicine. As Stevens (1971) has indicated, the development of the residency itself was predicated on the need for further subspecialty education, over and above that necessary for generalist practice. It is understandable, therefore, that medically complex hospital-based practice has been seen as central to this education. Internal medicine and pediatric graduate programs, which evolved primarily to train the consultant specialist, have been in particular conflict about their dual role. While they have the obligation to educate consultants, most of their graduates are engaged in primary practice (Young, 1964; Bogdonoff, 1970). For example, in a discussion of internal medicine residency training, one department chairman says, "to compete successfully in the future, if not today, each young internist must have his subspecialty" (Meyers, 1964). Another notes, "The foundation for all training in internal medicine must be a period of intensive work on the wards, with direct responsibility for patients" (Ebert, 1964). Our quarrel is not with what such pronouncements say, but rather with what they omit and what priorities they reflect. As Bogdonoff (1970) states, "When a physician who is trained almost solely in a setting where Desperation Medicine makes up most of the clinical endeavor, the patients he sees in community practice turn out to have the wrong disease."

It would seem that pediatrics and internal medicine need to reach some rational decisions in their relation to family medicine. Either they ought to relinquish their role in primary care education and practice—and also recruit proportionately fewer medical graduates to their own fields—or else acknowledge their own obligations to primary care and reassess their educational efforts with this in mind. To continue, however, to recruit the majority of medical students without accepting the fact that most of them should be prepared largely to practice primary care strikes us as almost unethical, given our current shortage of primary care physicians. In this regard, at least, the new family medicine residency programs have been fortunate. Starting with the single purpose of educating the primary care practitioner, these residency programs have been freer to formulate their plans without multiple goals and prior hospital service obligations. Even in their short history, however, their

educational and service requirements are unfortunately beginning to develop their own rigidity; and this may be unavoidable.

The following section describes programs in graduate and post-graduate primary care education, beginning with pediatric and internal medicine programs; assesses family medicine programs; and concludes with comments on the situation in Great Britain.

Pediatric and Internal Medicine Programs

■ Pediatric and internal medicine graduate education have been shaped largely by the forces already mentioned. These graduate programs have as their historic mission the training of the consultant physician; and the "core content" of such training occurs on the acute inpatient service (Ebert, 1964; Bogdonoff, 1970; Lawson, 1969). Primary care programs need to be understood against this background, because a kind of "grafted-on", or at least peripheral, rather than central, quality has resulted in many of them.

Mumford (1970) has alluded to the powerful imprinting effect of the internship, the year when "core content" is most strongly stressed. What concepts are emphasized in this period? While there is some evidence that interns come in contact with a broad spectrum of both common and uncommon medical problems during this time (Wallace, 1971), several studies suggest that this is conveyed in an "instrumental" rather than in an "expressive" environment. As disease and procedures loom large, patient priorities and worries are of necessity less compelling. Payson (1961), in a time study of the internship, observed that two straight medical interns averaged less than ten minutes daily with each patient after the admission workup, and much of that was impersonal in nature. A more recent study of three West Coast intern programs revealed more time spent with patients, although the vast majority of this time was still concentrated in the formal history and physical examination (Gillanders, 1971). In a later study, Payson (1965) noted that teaching rounds rately dealt with patient-physician communication skills and, indeed, excluded the patient most of the time. What is conveyed in such an atmosphere is a priority of values or a hierarchy of what is most important and what is less so. As one resident recently observed, "When the attending physician can't say anything intelligent about the disease, he usually talks about the social aspects of the case."

One cannot conclude, however, that physicians who undergo this educational experience will be inadequate primary care clinicians. Indeed, it is hard to see how the realities of acute hospital medicine can be learned in any other fashion. Some family medicine educators have solved this problem by contending that acute hospital medicine is really a very peripheral part of their task and, therefore, needs far less emphasis during their training programs.

Recognizing the neophyte doctor's urge initially to learn the management of the acute and seriously ill patient, Haggerty (1969) has suggested that the acquisition of skills in long-term care, or in cases where continuity is important, be deferred until the later years of training. In fact, at present, this is the most common model in pediatrics and internal medicine. In the light of Mumford's observations, the model grants that the initial "imprinting" will be a hospital-disease orientation and relies on the growing maturity of the resident and the altered work setting of the later years of training to restore the balance in his clinical outlook.

It is within this context that a number of programs in pediatrics and medicine, which emphasize primary care content material, have evolved. These programs – more typically segments within a larger program – can be ordered along a spectrum of intensity or of how much time and allegiance they require of the student. At one end are those programs that describe special rounds or educational sessions on the inpatient service (Bates, 1965), in which social and psychological factors in the management of hospitalized medical patients are emphasized. Inasmuch as this aspect is often omitted from inpatient education (Payson, 1965), a separate session that involves social service, nursing, and continuing care personnel is arranged.

Somewhat more intensive are programs where house staff may follow patients over a period of time in the outpatient clinic. These range from an optional followup of inpatients or those considered "interesting" by the house staff to more intensive, required programs with assigned families or patients in a separate comprehensive clinic (Bogdonoff, 1963; Miller, 1964; Wise, 1966; Haggerty, 1969). In these instances, house staff have regular assigned sessions in which they see their own patients by appointment. Arrangements for ongoing responsibility for these patients between appointments vary from completely *ad hoc*, depending on the interest or largesse of the resident and the hospital switchboard operator, to more organized programs with separate secretaries, telephone answering services, and nurse practitioners to enhance communication.

At a further level of involvement, some programs have established "model practices" within

the university center, which may have full-time practicing staff to complement the residents. The Kaiser-Permanente residency training can be seen as a version of this (Shearn, 1971). In an extension of this model to the community setting, the Montefiore Hospital Center in New York has established graduate training in medicine and pediatrics that uses a neighborhood health center as the base of its educational program (Kindig, 1969).

The hospital outpatient department itself has been the site of many of these programs; and several authors suggest, as we have noted earlier, that ambulatory patient education should be based there due to its similarity to medical practice (Wingert, 1966; Knowles, 1966). On the other hand, a comment by Wedgwood (1969) reflects another truth about such programs: "Over half of our (pediatric) residency (at the University of Washington) at the present time constitutes ambulatory pediatrics, much of it related to primary health care. . .These programs are not popular with residents, not because they are not given emphasis administratively, but perhaps because of the quality of instruction within the programs themselves, and because of the need for the physician in training to get the acute care and the unusual off his chest."

Summary

In summary, a kind of schizophrenia exists about primary care education within traditional pediatrics and internal medicine. We mean this both in the inaccurate lay sense of the term – a split personality, in this case a split allegiance to consultative and primary medicine identities – and in the truer definition, which is a separation of thought and affect, often at an unconscious level. Although many departments verbalize the importance of primary care programs for their trainees, their effort remains invested on the ward. The problem is complicated by the reality. These fields do have a dual responsibility, and it has been generally difficult in practice to integrate these often conflicting obligations.

Perhaps the most common current attitude of pediatrics and medicine departments is reflected in the retention of well-developed secondary and tertiary medicine programs and the recruitment of educational faculty to develop ambulatory and primary care under the departmental umbrella. Primary care is seen in this view as a new subspecialty, in a sense like hematology or endocrinology, which will be offered to the trainee as another career choice. There are reasons to believe that this "let a thousand flowers bloom" philosophy will not be successful without a more basic reordering of department priorities. The fact is that the majority of the trainees will need to choose this career – primary care – in preference to all the subspecialties; this is unlikely to occur in the present context. The final section of this monograph will consider the issue further and suggest some possible resolution of this educational dilemma.

Family Medicine Programs

■ The structure of most current family practice graduate programs has been influenced both by the success of the specialties in attracting candidates and by the notable failure of the general practice residency programs established after World Was II to do so.

As noted earlier, four years of medical school plus a rotating internship was considered adequate training for general practice until the 1950's. The field of general practice – progressively excluded from influence within medical education from the time of the Flexner report–was, therefore, not in a strong position either to appreciate the growing importance and attractiveness of residency training or to present an attractive postinternship program. The general practice residencies of the 1940's to the mid-1960's were largely centered in hospitals unaffiliated or only peripherally affiliated with universities. They were chronically undersubscribed and considered less adequate educational experiences by the trainees (Gee, 1961). Furthermore, the growing popularity of the straight specialty internships during the 1950's and 1960's served further to identify the student with that specialty and lessen his likelihood of entering a general practice career thereafter (Saunders, 1961). Finally, the attractiveness of entering a "specialty," coupled with the absence of any limits on employment opportunity in this regard, further confirmed the relative unattractiveness of a career in general practice. As Stevens (1971) notes, the rapid development and popularity of residency training was specialty dominated, and "once again (the general practitioner) was left outside the specialty provisions. Once again he was identifiable by what he lacked, rather than what he had." The family practice programs that have developed since the late 1960's have differed in several important regards from these earlier programs. The new programs consider their field a specialty, and they hope to attract candidates from medical school into an integrated internship and residency. Most importantly, following the Millis report, they are university based.

There were 59 approved family practice residencies by mid-1971 (Geyman, 1971); over 150 by mid-1973; and more than one half of the Nation's

medical schools had existing or planned family practice programs. Most of the programs share several common features. They are based on the assumption that family medicine is a discipline distinguishable from that taught in other clinical departments, which therefore requires a separate unit within the university in order to develop its body of knowledge and to attract and train candidates. In some schools the unit has been a division of existing departments—typically medicine, preventive medicine, pediatrics, or psychiatry – or is itself a department. In general, local factors such as the degree of acceptance and support of the major clinical departments have influenced the decision to assume department status. The trend, however, seems to be toward a separate department, with a family physician or generalist rather than subspecialist as department chairman.

The field is, by definition, concerned exclusively with primary medicine, and most programs adhere to the definition formulated by the American Academy of Family Practice in this regard (1969). Established programs have tended to follow the re commendations of the Willard Commission (1966) in developing a residency program, in which a total of three years, including internship, is divided into two aspects: block rotations through subspecialty services, inpatient or outpatient; and continuing involvement in a model family practice unit operated by the medicine unit. Most programs emphasize the ambulatory rather than the inpatient experience as central to their purpose.

There has been an effort to attract a group of families representative of the general population of patients (Carmichael, 1965; Phillips, 1971; Smith, 1971). This is in contrast to many existing university programs, which tend to involve either the very poor or very specialized sub-groups that are less typical of those with whom most trainees will work in practice. Finally, the programs have emphasized that their faculty should be largely family practitioners, rather than subspecialists, in order to demonstrate a role model for the student.

These programs share common problems as well. Most utilize existing specialty services for part of their training—usually inpatient medicine and pediatrics; and this has produced conflict. "The family medicine resident was not freed of his responsibilities for in-hospital care when he was assigned to ambulatory care duty," observed Phillips and Holler (1971). Family medicine departments have the alternative of operating their own inpatient services, with the responsibility that entails, or continuing to negotiate with the subspecialties. We are unaware of any major institution where a family medicine department can operate its own inpatient service; as a result of this, the departments are less autonomous than the traditional services.

Second, as with any new discipline, there are not yet family medicine faculty in sufficient numbers with experience in university teaching and research to staff the rapidly expanding academic departments. Skilled family practitioners have not often been teachers, and vice versa. Also, family practitioners have not often been researchers. What little research they did was on educational methods rather than on the merits of family medicine or how to improve it. Insofar as most programs attempt to integrate and present material in a new fashion, they will likely need to develop their own faculty from among the new young graduates (Vuletic, 1966).

Third, it is too early to tell whether the new family medicine programs will develop sufficient "legitimacy" in the minds of medical students to attract them in preference to the more established residencies. In the past, more intellectually able students have chosen subspecialties in preference to general practice programs (Monk, 1956). There is of course a "critical mass" phenomena that family medicine programs will need to overcome – students who are attracted to primary care need to be convinced that they will not be alone after training and that enough family practitioners will be produced to share the primary care burden. In other words, graduate education for family practice can only be successful if medical school experience has assured the student that he is entering a legitimate and acceptable part of the profession. The past educational inadequacies of the general practice programs remain as something of a spectre to be overcome in the minds of students and faculty. The nest decade will be critical in determining whether family medicine programs will overcome these difficulties and attract a significant number of students interested in primary care.

A final problem, commonly heard in discussion with medical educators but less often written about, concerns the field's "legitimacy' in the minds of other medical school faculty. (See page 130.)Many academic internists, pediatricians, and other specialists do not believe that family medicine represents a viable form of practice or a real body of knowledge distinct from their own. This attitude is not lost on the medical student. Others are quite willing to accept the new field but "not in the university medical center." Locating the program's home in a community hospital or outside a hospital altogether conveys to many a second-class status. It will be essential for all primary care programs to educate the medical educators to the fact

that "University Hospital" does not equal "University." In short, programs central to student learning may be located at varying sites in the community, all of importance to medical education.

Probably the appeal of the new family medicine residencies has been the opportunity they afford to design a program with the educational goals well defined and without the very real hospital service obligations that have so influenced other academic medical departments over the past twenty years. Family medicine does not have a major research program. This may be a real disadvantage, and academic family medicine will need to develop its own research program. Some programs are already overwhelmed by ambulatory service demands and are not developing the research base so essential to future growth.

Postgraduate Education

■ Continuing education for primary care practitioners is an active field, judged by the number of courses and seminars offered. The Academy of Family Practice requires evidence that its members, in order to maintain accreditation, attend courses annually—the only specialty group to do so; and several states now require participation in continuing education for renewal of licensure. However, evidence of the benefit of these educational programs is scanty. For example, Lewis (1970) could not correlate participation in postgraduate education by Kansas practitioners with improvement in health indices in their areas nor with increased use of certain recommended operative procedures. Both Peterson (1956) and Clute (1963) found that attendance at postgraduate courses did not correlate well with their measures of the quality of a physician's medical practice. Uhl (1971) in a review of continuing education efforts noted that, "The few studies of physician participation in continuing education all document the fact that traditional programs do not have a measurable effect on medical care in the institutional setting or in the physician's office." The Committee on Medical Education of the New York Academy of Medicine reached a similar conclusion (1970), as have other observers (Brown, 1970). It may be, of course, that benefits of these programs do exist in terms of physician satisfaction and stimulation. The value of a brief respite from a busy practice in an education milieu may be beneficial even if the results are difficult to measure.

Most of the programs being criticized are short, several-day courses, usually featuring speakers from subspecialty areas who report recent advances in their own fields. Those programs devoted to upgrading specific technical skills also present problems. For example, McGuire (1964) noted that those practitioners whose diagnostic acumen had significantly increased at the end of a brief intensive course in cardiac auscultation technique had regressed to their precourse level after several months. Miller (1967) suggests that the problem lies in the fact that such education must be "learner based" to be effective. It must start with what the practitioner wishes to know, and it should deal with problems that are common to his experience and about which something can be done therapeutically.

Suggestions or descriptions of other types of educational experience for primary care practitioners have included a one-year sabbatical program for practitioners in a university setting (Brent, 1969), an exchange of jobs for a one-month period between academician and practitioner (Bergman, 1969), and home study courses (Storey, 1971). The use of retired subspecialists (Hicks, 1972) and radio or television closed-circuit networks have also been employed. In Great Britain, the British Broadcasting Corporation has an extensive series of programs on public television specifically aimed at updating the general practitioner's fund of information.

Ongoing seminars in the management of behavioral problems in practice have been reported both from England (Balint, 1964) and the United States (Sumpter, 1968). Although success has been claimed for such efforts, a number of these programs seem to have a defined "life span" of only a few years. The Rochester program of postgraduate behavioral "workships" has continued and expanded over an eight-year period, with the addition of new practitioners and the withdrawal of others. These graduate programs do have the appeal of adhering to the essentials suggested by Miller. Their subject matter is common, it is of perceived importance to the participant, and improvement in patients is often evident.

Some other countries have addressed this problem more directly (Storey, 1971). Postgraduate education in the Soviet Union is accorded a high priority, according to Storey. A stated goal is that all practitioners enter teaching medical centers for three months every three to four years. Home-study courses are provided, meanwhile, to enhance the value of the time spent in the medical center. Although there is evidence that this policy has not been universally implemented (Muller, 1972), the idea that it is an accepted and stated goal is an important step. While we lack any evidence that such a program would result in changed behavior

of the practitioner–much less in improved patient care, it underscores a commitment to link education and practice. The opportunity for enhanced communication between educator and practitioner would offer, at the very least, mutual benefit.

Our opinion is that continuing or postgraduate education is particularly pertinent to the primary care field and ought to be more closely integrated with education efforts at the medical school and graduate level than it is at present. The idea of planning medical education as a single continuum has of course been recommended by a number of observers (Millis, 1966; Haggerty, 1969). Perhaps this advice has most meaning for primary care, however, as a result of the relative isolation of the practitioner from the very influential educational environment of the hospital and the university. Mumford (1970) observed that within the university hospital two norms obtained that promoted communication and education: "the open mind" and "relay learning." These concepts help to stimulate mutual observation and criticism by physicians, which seems central to continued learning. Most medical specialties are either closely affiliated with universities or hospitals in the United States or partake in varying degrees to mutual observation in this environment. Primary practice, conversely, is typified by the opposite – a private, independent setting that tends to resist or at least not encourage independent scrutiny. While this may have some benefits in terms of the freedom and independence of the physician, its implications for continuing education of the practitioner must be pernicious. Particularly in light of the rapid increase in medical knowledge, a system that fails to provide the physician with continuing education is seriously deficient in its responsibility.

There is a trend toward locating continuing education programs as separate units within the university medical center or as responsibilities of specialty boards or government agencies. Due to the intimate link to basic primary-care education, we recommend that family medicine, pediatric, and internal medicine units engaged in undergraduate and graduate primary education be responsible for–at least the integration of–continuing education as well. The educational setting need not be the university itself but could include area health education centers or the satellite programs of the university.

Primary Care Graduate Education in Great Britain

■ The structure of graduate level primary-care education in Britain is easier to comprehend than it is in the United States, largely because primary care practice is more clearly separated from specialist practice than it is in our own country. This division of responsibility separates personnel, site of care and method of remuneration.

All primary care, by our definition, is provided by general practitioners who practice largely outside the hospital. All consultant care is provided by hospital-based specialists who have essentially no primary care function. Remuneration for the specialist is based on the consulting sessions he provides for the general practitioner. This fairly clear role division is longstanding; it antedates the introduction of the National Health Service in 1948. In fact, that Act served to legitimize and, unfortunately, in some ways to rigidify the separateness of generalists and specialists. Changes anticipated in the reorganization of the National Health Service in 1974 are aimed at improving communication between the two groups rather than altering the structure of their roles.

As in the United States, completion of medical school plus one hospital year after graduation were considered adequate preparation for general practice until the late 1940's. At that time, a National Trainee General Practitioner scheme was introduced in which candidates spent usually one additional year as apprentices with selected general practitioners. Although the trainee probably saw a representative sample of patients during this time (Richardson, 1972), there was wide dissatisfaction with the results of the program (Whitfield, 1966). Criticism largely centered around the wide variability in the caliber of instruction provided. Furthermore, the scheme never attracted more than ten percent of those entering general practice, because a physician could still earn far more by entering practice directly either as a principal or a paid assistant following his single hospital year; and there was no evidence of the efficacy of spending additional time in formal training.

In more recent years a good deal of discussion and effort has gone into the design of primary-care graduate education. The impetus for change has come largely from the efforts of an energetic and articulate group of general practitioners within the Royal College of General Practitioners (1965, 1967), together with suggestions of the Royal Commission on Medical Education (1968). The latter commission recommended that general practice be recognized as a separate specialty and that all specialties require an internship and three years of common hospital-based training, followed then by several years of specialty training. This recommendation has not been implemented to date. As of

1972, a consensus of educators suggests that all general practitioners should receive three years of special training—after the internship equivalent—with a long-range goal of five years of training (BMJ, 1972).

What currently exists are a number of local programs in different regions of the country with positions for a total of approximately 170 candidates; about 1,000 enter general practice annually (BMJ, 1971; Lancet, 1972). Most of the programs have a similar structure and usually last three years. Students spend one or two of their three years in hospitals, rotating through specialty departments of medicine and pediatrics and, in some places obstetrics/gynecology, surgery, and psychiatry as well. An additional year is spent either in a family practice teaching unit affiliated with a medical school or, more commonly, with a selected general practitioner. This apprentice year usually follows the two hospital years or is divided in some fashion before and afterward. Some programs include a "day release" feature in which trainees meet weekly at a postgraduate medical center with a tutor to evaluate their experiences, listen to formal lectures, or to carry out small research projects.

In general, the new programs have been popular, with nine of ten available spaces filled. Criticisms from the trainees have centered around the excessive service demands of the hospital rotations, with inadequate attention to the educational needs of the future generalist or, again, around the variable quality of the general practitioner trainers themselves. Only one in three of the latter have participated in a course in teaching, and the vast majority offer less than three hours a week of formal teaching to their trainees (Lancet, 1972).

As in the United States, the impetus for developing graduate education for primary care has come largely from those within general practice and those representing the public interest, rather than from medical school and medical education representatives. The latter group, hospital-based and specialty oriented, have in general resisted the establishment of general practice teaching units within medical schools. When challenged, some argue that current medical education is adequate for general practice needs and that the newer programs are as yet unproved. At present, less than one-quarter of British medical schools have general practice units. This may pose a long-term problem. If medical school settings are considered the logical site for medical research to occur, then it may be difficult for the field of general practice to develop further its body of knowledge unless it has this attachment. Alternate possibilites would be for this new field to become affiliated with departments of community medicine within medical schools, with university departments of social and behavioral sciences or, most likely to develop further their own basic research resources within the Royal College of General Practitioners. At any rate, some university or equivalent resource would seem highly desirable for a field that has great need to develop its educational content.

A further interesting phenomenon is the relationship in Britain between Departments of Social Medicine and the developing field of academic general practice. In general, social medicine departments have adhered to an epidemiologic research orientation that has not included clinical involvement, although there are exceptions. While some general practice programs have been, by mutual consent, sponsored by departments of social medicine, most have sought a separate identity. Social medicine has historically perceived its orientation as being toward community or population medicine rather than personal medicine (McKeown and Lowe, 1966); and what little organizational intermix has occurred has taken place, because social medicine has provided a (temporary) base for general practice within the medical school setting.

Summary

In Summary, the picture is one of rapid growth and change, as it is in the United States. There is a public commitment to graduate primary care education, as reflected in official recommendations and evolving plans and programs for such education. But a two-fold problem continues to exist. Only a small minority of practitioners currently elects to undergo this training prior to practice as a principal; at present, the number of training positions is insufficient. It is unclear as yet whether or not the problem can be resolved by the development of attractive new programs alone. Currently, the Royal College of General Practitioners has suggested that mandatory graduate education be required after 1977, a coercive policy not yet completely agreed upon even within general practice.

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VI. The Elements Of A Successful Program

In light of the historical trends we have outlined and the programs we have reviewed, what can we recommend so that more physicians will be trained who are prepared to practice competent primary care? Of equal importance, can the education insure that most will adapt to, and some lead in, the evolution of primary care practice during their own careers?

We feel confident in the validity of our proposals as they concern educational programs as a result of our own personal experiences. But why limit ourselves to this level of discussion? Let us see how the history of medical education has been influenced by actions and events occurring at much broader levels—within the entire medical school, the practicing profession, the public funding agencies, and the climate and priorities of the time.

We can begin arbitrarily with the Flexner report. It led to a decision to link medical school and university in the 1910-to-1920 period and fostered the subsequent growth and organization of the medical specialties. Consider these extrinsic factors affecting medical education: the limitation on the number of medical student positions during the 1940's and 1950's, the enormous Federal investment in biomedical research in the 1950's and 1960's, the growth of consumerism and the pressure to admit "minority" students in the 1970's. These are all examples of actions largely emanating from forces outside medical education itself—through, significantly, interacting with persons within the educational system—which have had as much impact on shaping the kind of doctor who now enters practice as any set of curriculum changes, special programs, or charismatic instructors.

If another example of the influence of public policy on medical education is needed, we should consider the cutbacks in federal funding of biomedical research during the period, 1969 to 1970. Faculty and schools whose income was largely derived from this source—in increasing annual increments—were rudely awakened to the fact that this was not "natural law", but reflected political skills and realities as much as the importance and worth of the research itself. So, it will be with the present "natural law", that medical schools turn out large numbers of practitioners and do it immediately.

Medical educators will, therefore, need to be more actively involved in the political processes that influence medical care organization in general and medical education in particular, if their influence is to count. Although we do not possess the knowledge for elaborating on the tactics of this point, we are quite convinced of the correctness of the strategy. This involvement can be at the local and State levels by regional planning and by developing communication with elected representatives. At a national level, spokesmen for medical education—the Association of American Medical Colleges and the professional societies—already have contact with Congressmen directly or through registered lobbyists. These efforts should be understood, supported by the membership, and expanded if possible. Recent events clearly indicate that government support of medical education is changing. It is the responsibility of medical educators to attempt to influence so that the inevitable strings attached to this funding are not tangled, as so often happens, in an irrational fashion.

At the medical school level, a major task of all concerned individuals is to determine exactly where the responsibility for primary care education should lie. Just as medical education and medical research must compete for finite resources at the public level, so primary care must compete for finite educational resources at the medical school level. Part of the failure to accord primary care education a high enough priority in that it has not been the main commitment of any one departmen

within the school. When the time comes to select the medical students, to divide up the curriculum, to select the resident staff, and to outline their program obligations, no one speaks loudly and consistently enough for the needs of the student who will enter primary care. There are exceptions to this, of course; as with "comprehensive medicine", most faculty members think about the problem some of the time. The major clinical departments—particularly internal medicine and pediatrics—have just enough interest in this issue, so that they are often unwilling to relinquish the responsibility to a new department of family medicine, but not enough to develop effective education efforts themselves. The Pellegrino Committee (1968) spoke to the issue as follows:

> Inevitably this vexing question will arise: which department should teach the generalist function? . . . In some instances a department of general practice might well be contemplated; in others, the department of medicine, pediatrics or community medicine might take the lead. An interdisciplinary program calling on all department, but totally dependent on no single one of them might be the optimal solution.

Our feeling is that public pressure may help to force the issue. Outside funds earmarked for primary care education may serve as the necessary stimulus for the medical school to define where its primary care commitments lie. Without intending to equivocate, however, there is danger in imposing too precipitous or too rigid a solution. The "correct" primary care practice model still remains unresolved, although there are probably several satisfactory ones. It would be a mistake to insist on a single template at this time, for the situation at each medical school varies enormously with interested and capable people located in various clinical departments and in the Dean's Office. Moreover, medical schools have the responsibility to evaluate those programs developed in primary care to provide needed data about the pathways travelled.

With these cautions in mind, we suggest steps to be taken at two levels. First, at the National level, those professional organizations that represent medical educators should begin a more active discussion of the problem, both internally and with representatives of other generalist and specialty groups. This need is particularly apparent in internal medicine and pediatrics; their obligations to primary care education and practice and, specifically, their relationship to family medicine should be defined more precisely. Do they wish largely to relinquish their role in primary care to family medicine—the most radical and least likely solution, though possibly the most rational one? Given the great size and diversity of practice in our country, it is more likely that several coexisting patterns will emerge. Indeed, some variation may be desirable, inasmuch as present evidence for the clear superiority of one pattern or the other is lacking. Nevertheless, national education and practice groups must spell out their positions, with the implications of those positions for student education well elaborated. For example, if internal medicine wishes to retain its current *de facto* primary care obligation, how will it help insure that the majority of its trainees do enter primary practice and, just as important, are well prepared for their career? If internal medicine opts to defer to family medicine in this matter, how will it limit its recruitment of medical students to the minority required for consultant work?

Along with this "vertical" debate, a similar "horizontal" discussion should take place within each medical school. Here, two pertinent decisions are to be made. Which department or interdisciplinary division shall "hold the primary care contract", and what are the obligations of the other clinical departments to primary care? All medical school departments ought to have a stake in any program that accounts for the majority of its graduates—assuming the physician retains his role in primary care. Moreover, each department should state its policy and program at the undergraduate, residency, and continuing-education levels for the advice and discussion of the medical school as a whole. As for other departmental obligations, we have in mind those specialties with important but presently ill-defined roles in primary care, such as psychiatry, obstetrics/gynecology, and community medicine. For example, in our review of liaison programs between psychiatry and medicine, we note that psychiatrists rarely have accepted the challenge of developing a body of knowledge and technique appropriate to primary care. Most often, they selected items from general psychiatric theory and practice and adapted them for consultant purposes, rather than developing ideas from the viewpoint of a primary care participant. Moreover, models that have been developed in these programs are more appropriate to a hospital inpatient or outpatient setting, rather than to primary care.

The establishment of a special clinic within a health center is not what we have in mind either. Although there is a place for such clinics, they do not address the issue of major concern. The question is not what the usefulness is in a health center of an adolescent or an orthopedic clinic, but rather what the implications of orthopedic or adolescent

medicine are for the organization and practice of primary care. The latter is a much broader and more difficult charge that must be accepted by specialty divisions within schools of medicine if new knowledge is to develop. Much of the problem stems from the facts that we do not, at present, know the answers and that the specialties have been more concerned with elaborating their own discrete areas rather than attending to the needs of the generalist. Once again, this points out the need for research and evaluation. In addition, the very real service and education obligations of the specialties have rarely left sufficient time or physical energy, much less the intellectual energy, for the investment required in developing primary care programs. We see this as a job for the primary and the consultant departments to undertake together. There are persons within the specialties who would find such questions challenging, and they should be encouraged to develop their ideas within the primary care educational setting. It will be necessary to secure sources of funding directly for this task without attaching it so tightly to service demands that, again, a makeshift model is constructed.

In addition to developing and defining its relationship with other departments within the medical school, the unit responsible for primary care needs to establish ties with those involved in other health science fields, particularly in nursing and social service education. At present the relative roles of the physician, nurse, and social worker in primary care is in flux; but communication among these disciplines is essential as new programs develop. Although physicians often prefer to devise model programs without the advice and participation of these allied health professionals, the limitations of such an approach become evident when attempts are made to expand the program beyond the local level. The fact of the matter is that primary medicine does have ill-defined borders with consultant specialties, on the one hand, and with allied health professions, on the other. Although this makes for organizational complexity, it would be better to recognize and legitimize these relationships overtly rather than to develop programs in isolation.

With these broad charges in mind, let us turn now to specific elements within educational programs for primary care. Even with a supportive public climate, allocated funds, and a committed medical school administration and faculty, the quality of any program will be influenced by a number of internal factors. Hansen and Reeb (1970) have outlined a very complete curriculum for primary care education. However, in translating their material into a viable program for student and house staff education, attention to the components of the system is of equal importance. As we have noted earlier, many of the programs reviewed herein have shared identifiable and common internal problems that have compromised their educational effectiveness; and, so, attention to these elements may be useful.

Specifically, these elements or ingredients of any program are the students, the faculty, the patients, the curriculum structure, and the setting. They are all interconnected, each affecting the other to form the "learning environment." There is value, however, in considering them separately, in turn, while recognizing that they form an integral pattern within the larger setting of medical education.

The Students

■ Whatever the other characteristics of the educational program are, they must all funnel into and be processed by the student, the "final common pathway" and a most important ingredient in education. We have discussed student selection of a medical career and correlates of their success during training in an earlier section, but would here stress several aspects of central importance to primary medicine. These are the attraction and selection of suitable candidates, the concept of student readiness and maturity for various aspects of the program, and the responsibility of the student for his own education.

In general, there has been more work toward correlating test performance and personality of medical school applicants with how they behave during medical school and residency than with how they behave in practice. The reasons for this are understandable: although performance during medical education is only an intermediate or process variable, it is the medical faculty's measure of a student's development. Besides, the performance of students in course work appears easier to measure than how they do in practice, where agreed criteria of adequate performance are still lacking. Unfortunately, the correlation of standardized preadmission tests, like the Medical College Admission Test (MCAT) with performance in medical school is not good, much less with performance in residency and practice. Nevertheless, in the absence of demonstrated validity of other measures, admissions committees still lean heavily on demonstrated science skills in their applicants (Rutstein, 1961).

Student personalities are fairly well established and conform generally to specific patterns by the time of admission to medical school. It is hardly likely that all with above-average academic ability

and a strong natural science background will be more productive and satisfied in careers as primary care physicians careers than as competent specialists. We need to identify those personal qualities that prove to be valuable assets in primary practice, and here the data is woefully inadequate. The task might properly begin with an attempt to define certain desirable qualities in all those who have entered medical careers. Jefferys (1971) has outlined seven "ideal characteristics" of a doctor as follows:

1. Above-average academic ability, in order to understand the scientific basis of medicine and acquire the diagnostic and therapeutic skills to apply it;
2. Above-average ability to sustain concentrated study;
3. Well-developed humanistic values, including willingness to forego personal comfort and postpone gratification in order to meet health priorities;
4. Willingness to make decisions and carry responsibility;
5. Physical energy and emotional stability;
6. Interpersonal skills, including sensitivity to the needs of others;
7. Capacity to teach, especially in face-to-face clinical settings.

There may be other characteristics that are highly desirable for the practice of primary medicine. For example, Mechanic (1968) identified a set of attitudes and orientations that distinguished satisfied from dissatisfied general practitioners in Great Britain. Satisfied doctors "tend to accept more readily than discontented doctors the personal and social aspects of medicine and . . . . in contrast to dissatisfied doctors they report that they prefer to work with illness complicated by emotional factors and with patients who question them and ask for more detailed examinations." On the other hand, work from our own country suggests that students who now select general practice as a career share certain characteristics as a group—most of them not what one would consider very desirable—low academic performance, low scores on measures of "theoretical interest," low intrinsic motivation, and high authoritarianism. (Sanazaro, 1965; Monk and Terris, 1956; Coker, 1965). What this may indicate, however, are selective features within the educational structure that propel students with these qualities away from the specialties and therefore toward general practice. The inducement to students with above-average achievement levels to choose specialty careers by specialty faculty is obviously a strong influence.

It may be fairly argued that qualities desirable in a primary care practitioner may not be easy to define, much less measure, and that attitude and personality measurement are not sophisticated or refined enough to be useful. The reality is that some standards are used already and that there is considerable reason to question their appropriateness. Although there is evidence that the student's clinical competence in practice derives from a combination of his personality and background with the length and quality of his training (Lyden, 1968), there is need for more research on the former.

Our recommendation is that attention now be directed to defining qualities that correlate with satisfaction and performance in practice and to devising methods for measuring these qualities. The concept of peer review in primary care may provide an entering wedge into the definition of clinical competence. The process of attending to selection of students for primary care is, itself, likely to be a beneficial one, even if solid techniques are slower to evolve. With a department or division within the medical school responsible for primary care, this would be an appropriate topic for research and a high priority for admissions committees.

A second concept involves the students' readiness for various aspects of the curriculum. Haggerty (1969) suggests a bimodal curve of activity in community programs for educational purposes—high in medical school and late residency, low in the internship year when the students deal with acute illness management. The danger of an approach that omits primary care at the internship stage is that the powerful "imprinting" of the internship experience may be difficult to reverse (Mumford, 1970). Again there are few data on which to base a judgment. It does seem logical, however, to argue that all the content areas in primary care cannot be learned equally well at any given stage of training. Areas involving behavioral or social aspects of care are often attractive and pertinent to the student in the late stages of his education, particularly in practice (Sumpter, 1968), when they have not proven to be so earlier. Part of this effect may relate to factors of setting, curriculum, and faculty priorities to be discussed; but "mutual-participation" medicine may require a more mature person that "active-passive" medicine does (Szasz, 1956). Dealing with patient problems that require sharing responsibility for management between therapist and patient calls for a degree of security and clinical judgment in the doctor that

needs nurture and time to evolve. Therefore, efforts need to be made to integrate practitioners into educational programs, so that they may continue and deepen their skills.

According to many practitioners, a full-time practice gives them insufficient time for participating in continuing education programs. Also, not being able to get coverage of their practice during an extended absence poses an additional problem. Although a decrease in their income would undoubtedly be a deterrent, time and coverage problems are considered crucial. Here, the university can play an active role. Involvement of practitioners in programs of collaborative research (Haggerty, 1969) can be achieved if secretarial and research assistant support for the practitioner is provided, a relatively modest expense that saves his time. Involvement in longitudinal behavioral "workshops" and preceptorships should also serve to forge links between the medical center and practice that are educational in themselves and can serve as the basis for further sabbatical-type arrangements. Judicious use of new allied health manpower can also be time-saving. If the addition of nurse practitioners enables pediatricians to care for the same patient population with 25 percent less physician-time involved (Charney, 1971), this, in effect, can free the time of one practitioner in a four-man group practice. The staff might elect to use this "bonus" to develop rotating educational leave program. Some would argue that such an arrangement would defeat the main purpose of the employment of allied health professionals, namely the ability of the same number of physicians to handle an increased patient case-load. On the other hand, there may be long-term benefit in having arrangements to attract and retain more candidates in primary care, especially if they are given the opportunity of periodic release time for study and change of pace.

Part of the income for the practitioner during his sabbatical may be derived from involvement in certain hospital-based ambulatory programs that complement his skills in practice; e.g., working several half-days in a referral diagnostic unit or in a community-based consultation program in mental retardation, cerebral palsy, or school health. However, direct grants to supplement these fellowships will be required as well. Insofar as these programs are oriented toward improving skills appropriate to primary care practice rather than toward wooing the practitioner into a specialist career, they should be encouraged. Again, sponsorship of these postgraduate programs by the primary care unit should help insure that their focus is indeed appropriate. We wish to emphasize that these suggestions are meant more as a stimulus to thought and initiative rather than as a blueprint for specific actions. Ideally, the educational experience should be tailored to the student's level of skills and maturity.

A final consideration should be given to the responsibility of the student for his own education. Millis (1969) observes that graduate medical programs "seem to be training (to form or habituate) but ought to be an education (to develop, cultivate, expand)." Central to this distinction is the assumption that a student should be responsible for his own learning throughout his professional career, an avowed goal of all medical education. We believe that the best way to strengthen this assumption is to encourage this self-teaching pattern, while he is still in an educational setting. The rapid trend for more elective studies within medical school is consistent with this goal, but this has been less true of the residency period. In large part, this reflects that ambivalent position of graduate medical education that is a shared responsibility of the hospital, with its heavy service obligation, and the university, whose primary mission is education. The graduate medical student—the resident—must be given the opportunity to create and be responsible for his own education to a greater degree—in a sense, given the right to experiment. The Family Medicine Residency at the University of Miami is a good example of this innovation (Carmichael, 1972). Presently, the only way this can be accomplished is to limit the student's service burden to some degree or limit the time now spent in subspecialty education. The utter dependence of most university hospitals on house staff for patient care conflicts with this goal. For example, how can a resident work with a migrant worker group trying to determine its own health needs and, at the same time, deal with the never-ending flow of patients in the emergency department?

We do not advocate the abandonment of clinical responsibility by house staff. On the contrary, this responsibility is an essential ingredient in their education and must be retained. But we must be cognizant of an imbalance existing in many residency programs that is detrimental to the student. Obviously, he must learn his responsibility to the individual sick and needy patient. He also needs the chance to learn his responsibility to the sick and needy community and to define his own role in that community as well. This learning process requires time and experience.

How can time be secured for elective programs within the constraints of an already crowded schedule? Several mechanisms might be considered: first, effective use of technicians and physician assistants who are now part of the hospital setting and also should be maximally utilized to save the resident's time. For example, residents need not perform routine laboratory tests such as collecting blood samples and setting up intravenous infusions, which now are increasingly carried out by technicians. Infant and adult intensive care units, premature nurseries, burn units and other specialty wards now function largely—some would say more effectively—with technician and nurse manpower with the advantage of greater personnel stability than rotating house staff. As hospital specialty care becomes more technologically complex rather than "intuitive," it is increasingly amenable to direction by a specialist physician with technician assistance. At the primary care level, growing evidence that nurse practitioners can assume portions of the traditional physician role lends support to selective apportionment of the student's time in those areas as well. Moreover, at current house staff salary levels, there is less financial inducement to consider the resident a source of cheap labor.

A second and probably more important approach requires that specialty services be more selective in the experience they provide the resident headed for primary care. While we consider it valuable for the student to be intimately involved in the complex care of the critically ill patient during part of his education, it is difficult to justify the extensive time required for such care in some internal medicine and pediatric training at present. In part, this reflects the dual responsibility of both departments for preparing both primary practitioners and consultants. But, in this combined program, the primary care trainee is shortchanged. Whereas his basic education is finished at the end of residency, most consultant specialists will have time for the sharpening of their skills during a fellowship.

Certainly most of the techniques now taught for managing specialty disease will change within a very few years, in many cases before the student sees another case in practice. The major justification for his participation must be in coming to understand the approach of the specialist, in sensing the potentialities and limitations of his field and in learning what will happen to patients he refers. While the multiplicity of specialty areas are inherently interesting disciplines themselves, on balance the student may benefit more from time spent in programs that direct his energy to primary care problem areas. Of course, the student requires sufficient time in the specialties, so that he may accurately identify a patient's need for the specialist referral and also learn how the specialist's skills are best adapted to primary care practice.

In short, we suggest "buying time" for elective experiences by maximizing use of technician and allied health manpower as well as specialty trainees, rather than automatically staffing expanded specialty and ambulatory services with primary care students. The value of each segment of the program must be justified on educational grounds.

Much of the success of the specialty aspects of the residency relates to the calibre of the consultants as teachers, quite apart from the applicability of their teaching to primary care. The challenge faced by primary care programs is that they need to create stimulating and challenging research and educational projects that are as attractive as those of the specialties. This leads to a consideration of the role of the faculty, a second ingredient in the educational structure.

The Faculty

■ "Do as I say, not as I do," can be as fallacious in primary care education as it is in child rearing. For example, the University of Rochester offered a two-year rotating internship between 1949 and 1961, one purpose of which was to train the physician for general practice. In a followup study, Romano (1964) observed that only seven percent of the trainees, in fact, ended up in general practice. The program consisted solely of rotations through specialty services, with no general practitioners at all on the faculty. In fairness to what was felt to be a successful program, a second goal was the provision of a "broader base for the specialist." Outcomes such as these suggest the important influence of the faculty as role models.

It may seem a truism to state that a good program requires good faculty, so let us be more specific. A review of several programs in "comprehensive medicine" reveal faculty who are not engaged in primary practice, either never having done so or having ceased to do so. It would certainly seem incongruous if cardiologists or endocrinologists taught their skills to students and house staff without themselves practicing their disciplines. In the occasional instance where this situation does occur, students are quick to perceive the inconsistency. It seems to imply that primary medical practice is a less demanding or involved field, which can be adequately taught by specialists or nonpractitioners. The impact of this nonverbal communication is not lost on the student. We do not mean to imply that

an administrator, a researcher, or indeed an ex-practitioner has no place in primary care education programs. Rather, we suggest that a program with few actual practitioners resembles that description of William Jennings Bryan, when he was likened to the River Platte: one mile wide at the mouth and one foot deep.

A common assumption in many programs is that primary care education requires no special faculty, that subspecialist faculty alone are competent to train the generalist. This assumes that primary care practice is equal to the sum of several specialists' practices. The experience of the Rochester two-year internship suggests otherwise. That is, given the opportunity in such settings, students will opt for specialty careers. Indeed, the current scarcity of primary care practitioners being graduated from our programs is sufficient evidence that specialty oriented training will produce specialty oriented practitioners in an open market setting. What is more difficult to demonstrate is that pediatricians and internists who do end up in primary care practice—the majority—have been shortchanged in their education and would have been better prepared by primary care faculty. Our impression is that, even if the specialist practitioner is an effective teacher, the disadvantages of inappropriate patients, curriculum, and setting within which he functions militate against the educational experience being a sufficient one for primary care.

One problem in faculty selection involves the issue of academic rank and promotion. Should primary care teachers be judged on the same basis as their clinical and basic research colleagues—the quantity and quality of their research, participation in learned societies, teaching responsibilities and skills? This is part of the larger issue of the relative merits of teaching versus research that concerns most university faculties, but it should not present any special or unique problems for primary medicine.

In general, we see three kinds of faculty involved in primary care training—two of them being part-time appointments and one, full-time. Part-time faculty are those whose major source of income and fringe benefits derive from the practice of medicine. One group has a level of involvement typical of most part-time faculty: they participate in some clinical teaching or preceptorships, attend ward rounds, and supervise outpatient clinics.These activities have been performed in the past in return for staff privileges and, generally, are not salaried.

A second group of part-time faculty consists of those who wish to be involved in more extensive primary care education and so reserve a portion of their time—on the order of two or three one-half days weekly—for supervision and involvement with students at various levels. This group should be selected carefully for their teaching skills and be reimbursed for their time. They should be able to supervise the student's development of clinical skills in primary care, which includes interview technique, diagnosis and management of the range of problems commonly seen in practice, rapport with coprofessional, and the techniques of research in practice. For these faculty, university promotion or fringe benefits properly applied are not a central issue. They are working part-time at a job that complements and enriches their practice, and they are remunerated accordingly.

Can funds be obtained for this level of faculty work and from what source? We do not have a ready answer at a time when funding medical education is a complex situation influenced by categorical programs and shifting government priorities. If each part-time physician is paid approximately $5,000 annually for two one-half days per week—in addition to "homework" required, then the equivalent of one full-time position can be used to obtain five or six committed faculty located in various settings in the community. The value of this group both as role models for the students and as advocates for the needs of primary practice within the faculty would be considerable.

The third group of primary care faculty are those with full-time appointments. They direct the educational and research efforts as their principal work, and they practice to the degree necessary to maintain and develop competence and to achieve their educational and research goals. This group is closely identified with the general functions of the medical school and should be promoted and judged on the same basis as their clinical department colleagues. These are the faculty who must carry out the needed research and evaluation in primary care. There is a good supply of faculty in the first two groups, and there appear to be sufficient numbers of students who are attracted to these roles in primary care education to permit the development of a competent total faculty over the next several years. However, this will require the development of special programs to train the faculty, which should be a high-priority matter for private and public funding agencies.

The Patients

■ Although in some ways difficult to separate from the setting, the patients in a primary care program need to have certain characteristics for the program to achieve its aim. For example, variations

in age, education, occupation, racial and ethnic background, as well as the living environment—rural, urban, or suburban—all influence patients' medical care behavior, needs, and demands. In addition, particular disease patterns and their prevalence within the population need to be considered. There may be reason to oversample some kinds of patients for the program on any one of these bases. While any hundred families will provide the student abundant experience in the management of common respiratory and gastrointestinal infections, they are less likely to provide experience with long-term management of some chronic diseases, such as diabetes. If the student's experience were otherwise limited to hospitalized patients with ketoacidosis, he would be unlikely to learn the primary care role with such patients. In other words, there is value in allocating the patient load to achieve a distribution of cases that may not otherwise be achieved. Yet this expedient has generally proven a difficult undertaking in the university medical center.

Practically speaking, it is not possible for each student to work with a full spectrum of patient, disease, and setting. In general, it is easier to add patients with selected disease characteristics, who are already concentrated at a university medical center, than it is to provide each student with patients from a range of environmental backgrounds. These cases can represent the oversampling of medical conditions or of well children for longitudinal growth and development observation that students should be in contact with over long periods of time.

An example of how a program might operate at a graduate level would be as follows: Interns are encouraged to select patients to be cared for over the next few years from among those seen during ward or outpatient rotations who either have no identified source of primary care or where arrangements satisfactory to patient and primary care provider can be arranged. Some guidelines may be obtained from dental education where students have to complete a quota of certain restrictions and procedures before being considered well-rounded in his practice. Faculty supervision is required to help him select appropriate numbers and types of cases. If the internship has a large time commitment to acute block rotations, most trainees will not be able to manage and learn from a large continuity panel of patients. There is great individual variation in the interests and capacities of interns and, hence, value in combining good faculty supervision with maximum responsibility by the intern. Essential are adequate supportive services such as secretary answering service, appointment scheduling, nursing, and social work; these can make the difference between a successful or a frustrating experience for patient and student.

In addition, during the resident's subsequent years, he works with one of the ongoing primary care units with which the university has an affiliation. The variations in these units depend on the location of the medical center. In very large urban centers, it may be more difficult to provide the range of setting that may be practical in a smaller city, where exurban or rural settings can be arranged that are within 30 minutes driving distance, However, variation in social class—particularly, with neighborhood health center and private group practice affiliations—would certainly be possible in most cities. Two or three one-half days per week over a year's time can be adequate for the resident to learn the style of the practice and the needs and habits of the patient population. In other words, he may have one single panel of continuity patients, if the primary care setting is located in the hospital as well; or they may be located in two sites. Through periodic formal conferences, simple research projects, and informal communication, experiences of all the residents can be shared. If each program has faculty members who themselves are practicing, then patients may be returned to their full-time care after the student leaves. In practice, many will be satisfied to have another resident, especially if their right to change physicians is known to them and respected. In addition, the presence of allied health professionals—particularly, nurses, lends an important stability and ongoing continuity to the patient's care.

Finally, patients as "whole people" and as "consumers" are more of an influential factor in primary medicine than is true for secondary or tertiary care. Like it or not, the complexities of the disease and the technology of care occupy more of the time and energy of the consultant than they do that of the primary care doctor. Primary care education should allow the trainee to shape his own definition of how a physician relates to the community or, at least, to begin to think along these lines. This is far better done by experience than by lecture. For example, the student ought to see and work with a program's consumer group (Does it have one?) or have the chance to become involved in school health programs, health education, or social action efforts. Students ought to have the opportunity of working with patients or community groups during various phases of a health program's

development—its inception and planning, the identification of new service needs, ongoing health education. The essential ingredient here is that the student is involved at a time of experimentation or flux so that he comes to know the processes of change, conflict, and planning as a participant (Dixon, 1965). These are the most difficult kinds of educational experiences to program; and integrating them into a curriculum while respecting the needs of patient, student, faculty, and university can be a trying experience. Avoiding such conflict altogether has its price as well—in the production and endorsement of the "uninvolved" physician.

Although concern has been expressed about the acceptability of medical students by patients in the primary care sector, our experience has shown that, with tact and honesty, patients of all economic classes accept the physician-in-training if they are assured that he is adequately supervised and if their right to change physicians is respected.

In summary, primary education programs ideally should introduce the student to a variety of patients in a variety of roles. The program should itself direct or be affiliated with primary care units, with organizational and patient diversity, at different levels of development. It should function as a laboratory with case material for primary care study—just as patients with different kinds of heart lesions make up the caseload of a cardiology trainee. If primary care education is indeed the major mission of the department, then this approach is a natural one; i.e., core training in primary care with specialty experience selectively added and not the reverse.

Curriculum Time

■ There must be adequate time devoted to primary care education, but perhaps more important is that this time be arranged appropriately within the larger curriculum for both medical student and graduate. It is essential to match the "natural history" of the clinical problem to be studied with the student's time allotment. By natural history, we mean the time it takes for key elements of the problem to become detectable or symptomatic, evolve through critical phases, and either stabilize or be resolved in some fashion. The student needs to experience these critical phases himself. So, for example, the natural history of an episode of pneumonia or otitis media lasts a few days or a few weeks in most cases. If students only see such cases for a few minutes in an emergency room setting, they may miss the fact that not all cases are resolved in the same fashion and that patients they themselves have carefully instructed in drug-taking and symptomatic care frequently ignore all such advice and break return appointments. Usually this continuity of care can be arranged by allowing the student to see his own patients in followup and by having an assignment that lasts on the order of a month. Similarly, inasmuch as the average acute hospital stay is of approximately one week's duration, rotations of a month or two on an inpatient service usually provide the student with a good grasp of the course and the crises of most acute hospitalizations.

However, many important clinical content areas in primary care take a good deal longer to make their natural history evident, and failure to take account of this can lead both to inadequate education and inadequate care. For example, Brook (1971) evaluated the followup care of 403 patients discharged from the Baltimore City Hospital. Despite adequate inpatient care by university house staff, one-third of the patients had poor subsequent medical care, even with the use of minimal criteria of evaluation. The fact that members of the house staff do not often learn what happens to chronic disease patients after discharge can lead to a distorted perspective in the trainee as well as to inadequate medical practice. Another example of inadequate experience with natural history leading to inappropriate practice can be seen in the advice given to new mothers by hospital nursery personnel. Although most nurses are quite competent at identifying and caring for the sick neonate, their suggestions to mothers at discharge about such common problems as breast feeding often suffer from lack of further contact with the family over the first few months of life. Similarly, one might speculate that liberal visiting hours for hospitalized children took so long to gain acceptance, because hospital staff in large measure were unaware of the reaction to hospitalization that is displayed for months afterward by some young children.

The following table suggests how a number of clinical topics in primary care can be divided into short—one day to one month, intermediate—two weeks to three months, and long-term—two months to several years categories, based on their natural history. The list is meant to illustrate the concept rather than be exhaustive. These categories overlap in time, as indicated; and their separation is, to an extent, arbitrary.

Medical education cannot provide the student with experience in every problem he will face in practice; but it does need to convey to him a sense of how a range of problems arises, evolves, and is resolved, so that he does not assume an opportunistic, short-term view. Moreover, these content

Table 1. — 'Natural History'[1] of Primary Care Content Areas

Short-Term (1 day to 1 month)	Intermediate (2 weeks to 3 months)	Long-Term (2 months to years)
1) Most medical and surgical emergencies	1) Acute or presenting phase of some chronic disease[2] a) congenital abnormalities b) diabetes c) asthma d) leukemia	1) The family (patient) as the focus, the disease as the episode. Sociology of the family
2) Common Infections a) pharyngitis b) otitis media c) gastroenteritis d) upper- and lower-respiratory infections	2) Certain behavioral disorders a) child rearing conflicts b) school adjustment problems c) some marital conflicts	2) Most chronic diseases a) asthma b) cerebral palsy c) mental retardation d) Psychosis and neurosis e) diabetes
3) Average acute hospitalization	3) Recurrent abdominal pain	3) Growth and development of children
4) Minor surgical trauma	4) Cardiovascular disorder (acute phase) infarction, hypertension, congestive heart failure	4) Working as a coprofessional team member
5) Relationship with the patient which asks why he comes and what needs the professional must meet	5) Observation of the "milieu of practice," the life-style of the practitioner	5) Design and implementation of a patient care research project
	6) Learning to work on a hierarchically organized team	6) A working relation repeated between professional and consumer
	7) Observation of the "Milieu" of patient care research. The techniques of research procedures.	

[1] "Natural History:" The time it takes for the problem to become detectable or for symptoms to evolve through critical phases and either stabilize or be resolved.

[2] Although this does not define the condition's entire "natural history" it does indicate the duration it usually takes for the condition to be diagnosed and initial management pattern established.

areas cannot all be experienced in one year. Some require more clinical maturity and readiness in the student if they are to have their maximum impact.

In general, programs for both medical school and house staff training have emphasized block, short-term experiences at the expense of longitudinal ones. We would point out that this has been detrimental to subspecialist as well as to primary care education, insofar as since the management of one chronic disease patient over time, for example, is not the educational equivalent of managing several such patients through acute crisis episodes. Both experiences have educational value.

Developing a curriculum with this concept in mind poses a number of practical problems. Who manages the acute intensive care patients when the trainee leaves the ward to see his long-term patients? Who sees the long-term patient when the trainee is detained by a crisis on the ward? One solution is to work in pairs or teams as the students did in practice; Another is to assign nurse practitioners to the trainees in the same way dental assistants are assigned to dental students in their training. The same team functions together for three to six months. How is continuity meshed with rotation through other services or other hospitals? Equally difficult for students, particularly at earlier stages of development, is the problem of coping with the change of pace required in moving from acute care, when the basic need is to extract information quickly, to the management of long-term problems where a different interview manner and relationship with the patient is required. The trainee may find it difficult to shift his mental gears without grinding his teeth.

During medical school and residency, the student has not been shown that these different situations may require different or more flexible techniques of patient workup. Indeed, except for the work of Weed (1969), medicine has been slow to develop such tools itself. The student soon learns that his all-purpose, complete "New Patient

Workup" rarely fits the clinical situation. Moreover, there is insufficient guidance to help him devise a suitable model for the more common brief-but-long-term contact he will have with patients.

Our suggestion is to construct a curriculum by first determining the actual content material to be learned; next, setting priorities within those content areas; third, deciding how intensive and extensive the learning experience must be to match these content areas; and fourth, specifying that stage of student maturation when the material is most appropriate. Finally, the curriculum should be shaped to meet all these needs. It is far less rational to first decide what service commitments exist and then assign students to fit those needs, as occurs in house staff programs. Undergraduates should begin medical school with exposure to and contact with patients whose needs are in the primary care area. Residency should include initial involvement in a primary care setting as a beginning for a longitudinal experience.

The Setting

■ The setting of the primary care education program—specifically its size, organization, and relationship to secondary and tertiary care systems and to the patient population—is the last of our ingredients and a crucial one for the success of the program. We refer here to the "style" of the setting as well as to its formal organizational and physical aspects. Specifically, what kinds of problems are considered important or trivial by the staff? How well do physicians and allied professionals communicate with each other? How isolated or integrated is the program from the problems of the community?

For example, evidence was cited earlier about impact of work setting on performance of those in practice. No less significant is this influence in educational programs. Using National Board Examination scores as criteria, Levit (1963) showed that interns in hospital programs with a full complement of house staff demonstrate greater gains in clinical competence after one year than those in hospitals that do not fill internship positions, regardless of the intern's competence on entry to the program.

In a discussion of educational programs for primary care, Hansen (1970) notes, "When primary care responsibilities or functions compete with consultant or tertiary care responsibilities, the primary care functions are consistently underrated by both teacher and student." Although this may reflect qualities of the teacher and student, we believe that the observation holds true largely due to the influence of the setting. If the style, pace, location, and organization is not basically concerned with primary care, and it is seen only as an unwanted but necessary chore, then teacher and student will not be concerned either. It is as impractical to demonstrate primary care practice within most university hospital settings as it is to teach techniques of gall bladder surgery in a neighborhood health center. One of the reasons for the success of the Kansas rural preceptor program (Dimond, 1954; Rising, 1962) was the chance for the "student to participate almost totally in a 'medical way of life' and identify with the preceptor in many ways," (White, 1964). This is a clear indicator of the impact of the setting on education.

Learning how to diagnose and manage psychological problems has been a particularly vexing and difficult problem in the education of the general physician. A major factor in this difficulty has been the inappropriateness of the setting of the program. Although exemplary techniques of interviewing patients in the hospital (Engel, 1971) or of socially oriented ward rounds (Bates, 1965) have been described, their success seems in large part to stem from the enthusiam or skill of an instructor. When this is missing, the programs are less successful; and when the original staff changes, the technique is abandoned altogether.

Ward attending rounds, for example, often omit discussion of the social or psychological aspects of the case and, in fact, often ignore the patient altogether. "Give us the lab results and we will do the job" conveys the spirit. Payson (1965) observed that regular attending physicians spent less than a fifth of their time with the patient during rounds; and most of that one-fifth was spent dealing with physical factors. He concluded that there was "less emphasis on bedside demonstration of individual or personal aspects of medical care than most attending physicians realized. Rounds appeared to show how senior physicians arrive at decisions and relate case findings to medical theory. They did not emphasize the physician's approach to the patient and the establishment of the doctor-patient relationship." As one attending physician stated with candor, "I never discuss what I feel uncertain about. I try to limit my comments to the aspects of scientific medicine that I feel expert in." (Payson, 1965.) And at times, inappropriate decisions are made by physicians due to missing psychological information (Duff and Hollingshead, 1968).

Our reaction is not to point with horror at such incidents, but to admit the basic validity of these observations. If we wish to teach about social and

psychological factors, this is probably best done where the setting, among other factors, is appropriate. In the instance of inpatient rounds, the curriculum time may not permit the student to unravel the psychological factors that have led to the hospitalization nor to the sequelae after discharge. The setting maximizes acute organic medicine, and the student responds accordingly. In a sense, for him to dwell on social and psychological factors may be unproductive. He would need the time and facilities to follow all his patients, a practical impossibility when the next case of cardiac failure or meningitis is arriving from the emergency department. The student is most likely to learn how to elicit, to appreciate, and to utilize social and psychological data when the curriculum permits long-term contact with and responsibility for some patients and when the setting prompts him to consider such problems as pertinent. However, the curriculum, including attending rounds, is not so fixed that the human aspects of care cannot be included.

Our recommendation, then, is that university schools of medicine become involved in primary care settings and that they conduct their educational and research business in settings either purposely built or within existing practices adapted to meet educational needs. We use the term "involved" advisedly. Obtaining a balance between just enough involvement to insure that the experience is educationally valuable, but not so much that the service burdens are overwhelming is easier said than done. We have been critical in the past of some earlier "comprehensive clinic" programs, largely because they are unrepresentative of primary care. However, investing all the effort of a school into a single large health center practice in order to achieve "reality" has its own drawbacks. It will demonstrate only one kind of practice organization with one kind of patient population, and it will assume a service burden not easily or ethically terminated at a later date if the situation should change. In short, one large "model program" may absorb faculty time and allegiance to a degree that may limit flexibility and preclude the change for continuing experimentation and "tinkering" that should characterize a laboratory setting. As another alternative, new programs might consider the following approach as another.

The university sponsors a teaching practice of no more than several hundred families—large enough to have an air of reality and small enough to ensure that all of the practitioners (other than the students) can be full-time faculty. The allied health professional staff are chosen for their teaching as well as their practice skills. The practice is housed in or very close to the main teaching hospital in order to facilitate integration with inpatient and subspecialty education. However, it is sufficiently independent of the hospital so that professional roles, record systems, patient intake procedures, and other matters can be changed without conflict with existing hospital policies. Within the practice are the "overrepresented" patients suggested earlier. This kind of program sacrifices the reality of practice to a degree because heavy educational priorities—i.e., supervised interviewing and consultation with faculty—preclude concentrating on high-volume patient flow and efficiency to the degree required in practice. In general, this is the model most common in the new family medicine programs, and it contains many elements of the earlier Family Care Programs.

Complementing the above program are relationships, developed slowly and selectively over several years with existing or new group practices, health centers, or solo practitioners. The university "contracts," as described earlier, for the teaching time of some part-time faculty within these practices. Responsibility for service does not depend here on the students to the degree that it does in the hospital program. Programs are selected for affiliation not only because they exemplify quality care, but also because they offer diversity in setting or clientele. This would represent a contemporary application of the preceptorship.

During elective portions of the curriculum, medical students and house staff work with consumer or practice units at varying stages of program development. Commitment for service or involvement is limited to that student group's tenure for the most part. In some instances, more permanent affiliations characteristic of the first two groups of programs may evolve.

We have cautioned against the problem of excessive service obligations incurred in the hospital as a result of the need to find financial support for the resident, and we would not like to see primary care programs end up with the same conflict. Our point is that resident staff are capable of providing high-quality primary care service under supervision in the same way they provide service in the secondary and tertiary care settings. If income from these sources is available, it should be utilized. Ideally, direct funds for education are needed as well, to avoid sole dependence on this one source of income.

A significant handicap in the development of new primary care programs is the obligation to meet service needs that already exist in the hospital

inpatient and outpatient department. Most programs will have to contend with this reality in addition to fashioning new models. Existing hospital organization and the traditional clinic system constitute formidable barriers to change.

We have suggested that judicious use of allied health manpower, and greater selectivity in the involvement of trainees in specialty services are required. However, the hospital ambulatory services pose a special problem. The number of patient visits has increased rapidly in most urban locales over the past decade. In addition, the responsibility for clinic management has usually fallen to those on the faculty who are most closely allied with primary care education, absorbing all their teaching and administrative energies in less than ideal settings. In fact, hospital outpatient and emergency departments increasingly provide the first contact portion of primary care to the community as the supply of general practitioners dwindles, and trainees are involved in a large share of that work. A vicious cycle ensues. Fewer generalists in practice mean more people using hospital ambulatory service. In response to this demand from the community, hospitals modernize and expand their facilities and, thereby, attract even more patients. What has evolved is an *ad hoc* pattern of medical care, facilitated in part by the availability of hospital-based trainee manpower. We consider this an inappropriate, short-term response to a long-term need. Indeed, insofar as it endorses short-order emergency room care as the primary practice model, it may have serious long-term consequences. Although this is one solution to the primary care problem, it is not the only one. By investing our trainee manpower in the operation of this model, we limit our option to support and develop others. Equally important, the student confronted with an unsatisfying model of care will be convinced that primary care or what he sees of it is the last thing he wishes to practice.

What can be recommended to resolve the conflict between new program needs and old program demands? First of all, we would emphasize that the problem is not likely to be solved unless we educate more primary care practitioners, a goal to which this monograph is devoted. In the meantime, two approaches are suggested:

Where educational programs are already responsible for significant ambulatory care service, the caseload should be analyzed into its component parts. These usually involve some combination of emergency medical and surgical services, short-term consultation, long-term management of chronic disease, and primary care. These separate functions each lend themselves to different organizational structures and staffing patterns. For example, emergency care needs rapid patient intake and processing facilities, specialized nurse and technician manpower, easy access to surgical and medical specialty consultation, and relatively expensive equipment.

Short-term consultation service requires a good prior sorting system, so that efficient use is made of subspecialist time. The unit stresses good working knowledge of an integration with community health resources, particularly for primary care and chronic disease, so that effective and pragmatic recommendations for followup care can be made. Access by the patient is indirect, through primary care resources in the community. The pace of the unit is slower and more capable of regulation.

Long-term management of selected chronic disease involves active participation of the patient in planning his care. Efficiency and speed in patient flow are less vital than a staff that is sensitive to the support-and-caring aspects of medicine.

Primary care embodies aspects of all of these, but it especially stresses easy access for the patient and a staff that has the capability and skills of outreach and followup in the community, rather than the highly technical skill required for emergency care or the indepth knowledge of certain diseases required in chronic illness management. If the entire outpatient service is not large, several of these functions can, of course, be combined successfully by one well-trained and flexible staff. Student physicians who staff several of these services simultaneously often have a difficult time shifting roles, especially if the support staff structure is not designed to meet the needs of the service required.

In short, a good deal more than the "diagnosis-prescription" function of the physician is required to carry out these several tasks successfully, and some reorganization of the services based on patient need would improve the quality of service and the efficiency of the staff.

With the other ambulatory functions separated out, the needs of those using the service for primary care should then be defined accurately. Who are the patients? Where do they come from? Are there actually several different populations using the service for somewhat different purposes—suburbanites for occasional care when their doctor is unavailable or others for all their health needs? What other resources are available? Finally, should an attempt be made within the hospital setting to provide care in a setting more suitable for service and education? This last point requires some difficult decisions. A proportion of emergency room

users may not be able to tolerate a long-term, intimate relationship with a health program, which is why they use the emergency facilities in the first place. They may resist being incorporated into a "model practice." Although this is an interesting group to study and to learn more about, they are frustrating to physicians in training and to experienced physicians as well. Having a mature group of full-time faculty and allied professionals share their care can enable students to live with and learn from the rejection they encounter at times. Our recommendation here is to aim for some kind of patient diversity if at all possible. Multiproblem, disorganized families should be part of any teaching program, because they are a part of the reality of practice or should be. They should not, however, be the only group involved in the teaching program. Until adequate primary care resources are available in the community, some programs may have to live with two standards of care provided: a more complete service to a selected group in a longitudinal teaching program and first-contact service on an episodic basis to others.

As a more adequate, long-term solution to the problem, medical education personnel should participate with area-wide health planning units to encourage and stimulate the development of adequate primary care education and service programs outside of the hospital. Planning agencies should be educated to the need for allied health manpower training tied into stable primary care settings. For example, the integration of public health resources now involved in some aspects of primary care such as well-child conferences and visiting nurse services with existing or planned primary care practices may stretch the resources and capabilities of both. In Great Britain, the attachment of health visitors and district nurses (public health nurses) to general practice groups has been accomplished in more than one-half of physician practices with evidence of benefit to patients and providers (Amblers, 1965; McGregor, 1969).

While the problem of ambulatory service demands in hospitals is a growing one, we would hope that a combination of more rational, community-wide planning for primary care needs of the total population, adequate funding through a national health insurance scheme, and an increased output of primary care personnel in more effective organizations will be sufficient to reverse the current trend toward inappropriate use of facilities.

Conclusion

■ If a rapid increase in the number of primary care practitioners is the paramount objective of the Federal Government, we acknowledge that influences outside the medical education system may be all that is required to effect such a change. A shift in terms of financial support to education directed specifically to this end—namely, incentives for the production of primary care physicians, changes in the medical practice system, and some limitation on the availability of subspecialty careers—would probably have the desired effect. Our strong preference, however, is that not only more practitioners be prepared, but also that they be better educated for their practice. To accomplish this aim, changes within medical education are needed as well.

At the national level, professional societies should enter into discussion with family medicine representatives on their relative roles and obligations in primary care. The implications of any decisions for manpower recruitment and education must be spelled out.

The university should acknowledge its role in coordinating primary care education at the medical school and at graduate and continuing education levels. Such coordination should be accomplished in conjunction with those representing the public and the practicing professions.

The medical school must set as a priority the development of criteria for selecting students who will be suitable candidates for careers in primary medicine practice.

Within each medical school, a department or division responsible for primary care education should be identified or developed. This department should have the responsibility to develop an overall program for primary care education at the undergraduate and graduate levels. It has a particular responsibility to devise continuing education programs that will link the practitioner and the educational unit. Extended leave educational programs for practitioners, a collaborative research effort with physicians in practice, and part-time faculty roles should be particularly encouraged. Research and evaluation must be an important activity of the academic medical center in primary care.

The obligations of medical school specialty departments to primary care education must be further defined. These departments in the past have correctly considered the development of their own disciplines as a priority. However, at present, there is an important gap between specialty medicine's body of knowledge and technique and the application of this knowledge at the primary care level. The fact that most physicians in training will end up in primary care practice—short of a major revolution in the way medicine is practiced—underscores the importance of utilizing appropriate aspects of all of medicine to primary care practice.

The university should develop sites for primary care education under its own auspices. These will require a variety of contractual relations, ranging from ownership and direction to short-term and loose affiliations for educational purposes only. In selecting programs to establish or to affiliate with, a diversity of patient population and practice organizations should be sought. These settings together should be considered a part of the university medical effort. They should be closely integrated with the hospital, but continue to remain independent.

In short, all components of the medical education process, which includes the medical school, its parent university, and the teaching hospital, have important work to do. At present, there is a good deal of uncertainty as to how we ought to provide high-quality medical care to our Nation. On the other hand, the uncertainty provides a climate that favors change and in which the education of the primary physician can be reshaped and improved dramatically.

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SECTION VI

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